The Iron A

A Review of the Hardware, Iron and Metal Trades.

Published every Thursday Morning by DAVID WILLIAMS, No. 83 Reade Street, New York.

Vol. XXII: No. 3.

New York, Thursday, July 18, 1878.

\$4.50 a Year, Including Postage. Single Copies, Ten Cents.

Chanvin and Marin-Darbel's Testing Machines.

In the various constructive branches of In the various constructive branches of engineering and architecture the necessity of as close an economy in the use of materials as is compatible with safety has naturally led to a more profound and searching inquiry into the resistance of materials to strains varying in their nature. The demand for metal, &c., possessing a certain given resistance has become universal, so that in their efforts to meet the requirements producers, as well as large consumers, are given resistance has become universal, so that in their efforts to meet the requirements producers, as well as large consumers, are obliged to provide themselves with the apparatus necessary for testing their material. The reliability and uniformity of the results obtained by these apparatus, though not yet complete, have nevertheless been enhanced considerably recently. In the accompanying illustrations, for which we are indebted to the Revue Industrielle, we show the latest styles of a well-known French firm, Messrs. Chauvin & Marin-Darbel. The principle upon which their machines is based is the action of atmospheric pressure upon a lower movable plate suspended from an upper one. The machine is composed of an inverted circular dish, fixed in the upper part of the machine. Within it a plate moves, which in its function is similar to a piston; a rubber membrane attached to it makes it airtight. The whole rests upon columns. In the center of the dish is an opening through which water may be introduced between it and the plate. When all the air has been expelled by the water flowing into this space the opening is closed by a plug. At the lower part of the space filled with water a U-tube enters, its other extremity being higher than the highest point of the dish. It is filled with mercury. As soon as the upper piston is drawn downward the effect will be to lower the column of mercury in the larger end of the tube and raise it in the shorter. A graduated scale measures this, indicating at once the total pressure and the amount per square inch. In the machines for testing the metals for tensile this, indicating at once the total pressure and the amount per square inch. In the machines for testing the metals for tensile or compressive strains, shown in Fig. 1, the bit which holds the lower end of the test piece is drawn downward by a hydraulic press, so that the upper bit and its attachments act upon the upper movable plate, either directly or by a system of levers. The aspiration acts upon the column of mercury, the lowering of which is a measure of the force applied. As soon as the test is finished the discharge valve of the hydraulic press is opened. The piston of the press is then raised by means of the counterweight shown on the right hand in the illustration. The graduation of the scale is obtained by calcuraised by means of the counterweight shown on the right hand in the illustration. The graduation of the scale is obtained by calculation, and may be controlled by directly suspending weights to the movable plate. Before every operation, according to the weight of the test pieces, the scale is so moved that the zero point corresponds to the level of the mercury. The large machine shown in the drawing has a capacity of 120,000 pounds; it is specially adapted for testing steel rails, &c., and has attachments for obtaining graphic tracings of elongation, compression and flexion. Fig. 2 gives a machine built for testing wire. A special instrument is made by Messrs. Chauvin & Marin-Darbel for observing elongation, &c., the arrangement of which will be seen from Fig. 3. By means of the two microscopes differences of 0.004 inch may be observed. A chief point of merit of these machines, besides their accuracy and the easy manipulation they permit, is the small space they occupy when compared with their power.

Benjamin Haywood.

Pottsville (Pa.) Miner's Journa the following tribute to the memory of the late Benjamin Haywood:

Benjamin Haywood, whose death occurred at 7 o'clock Tuesday morning, July 3, was born at Southwell, Nottinghamshire, England, Nov. 9, 1805. He was descended from a at Southwell. Nottinghamshire, England, Nov. 9, 1805. He was descended from a family of ironworkers, and at the age of 12 was apprenticed to a blacksmith, with whom he "served his time." At the age of 24 he concluded to try his fortune in the new world, and embarked for America August 31, 1829. Landing in New York, he first looked round for a job in that city, and finding none made his way to Philadelphia, and thence to Reading. At the last place he was advised to go to Pottsville, where he arrived in October. It was in 1820, during the wild excitement It was in 1820, during the wild excitement of the early mining days, when capital was flowing into the coal region, speculation was intense, business was done on high pressure principles, and labor was in demand. At first, however, the young emigrant found it difficult to procure employment, and com-plained years afterward that he had been ompelled to forsake his trade and find work stone quarry. But this did not last . In ten days he had looked over the long. In ten days he had looked over the field, found that there was a want of iron workers, rented an old shop in Port Carbon, nd was hard at work at mine smithing First he made and repaired wheels and axles, and then got to making cars. It was just

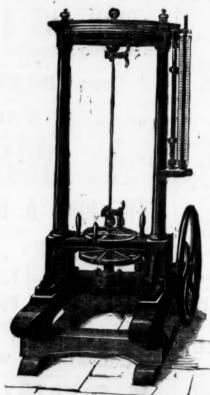
substitute for him. In 1835 was formed the copartnership of Haywood & Snyder, machinists and engine builders, at the Colliery Iron Company, and for a number of other Iron Company, and for a number of other Iron Company, and for a number of other large works, the foundation of a large and successful business enterprise, which is still

Works the first set of rolls for rolling T rails

They made the machinery for the Montour Iron Company, for the Phœnix Iron Company, and for a number of other in San Francisco, realizing a good price for it, and returned to Pottsville, where he was work when works the first set of rolls for rolling T rails received by his old friends and workmen work. About two years ago, however, when the iron business was at its dullest and prices most depressed, his men struck against a reduction of wages which the state of the business rendered absolutely necessary. This angered the old man. He

Fig. I .- CHAUVIN AND MARIN-DARREL'S TESTING MACHINE FOR RAILS. ETC.

in existence in the hands of the junior part-ner, and which has given employment to constructed the first machinery for sawing hundreds of workmen and taken a prominent part in the supplying of our collieries with was heavily interested in the coal business,



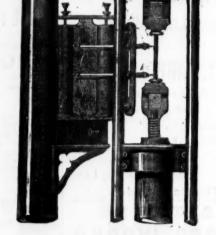


Fig. 3.—ELONGATION REGISTERING APPARATUS.

the state of the business rendered absolutely necessary. This angered the old man. He considered it an act not only of injustice but of ingratitude. Weighed down by increasing age, struggling then with the disease which finally killed him, worn out by a life of hard work, he decided to stop. He told the men that he would have kept the wills once at his own arrows for their mills open at his own expense for their sakes, but they had closed them themselves and they must take the consequences; he would never reopen them. And he never did. The men reconsidered their action, but it was too late; the decision was irrevocable. Nevertheless their old employer always remembered them with kindness, always remembered them with kindness, and on the Fourth of July just past he roused himself from the prostration of advancing death to give directions to his secretary concerning some of them to whom he had been in the habit of making presents on the Fourth of July and Christmas. It was characteristic of the man. Always firm and unyielding, always determined on having his own way, he was nevertheless both just and generous, and though the painful disease with which he suffered for years affected his temper in later life and made him at times fretful and perhaps unreasonable, the crustiness was only on the surface. Under it ness was only on the surface. Under it beat a heart which would not knowingly wrong his bitterest enemy, and which was quick to respond to any legitimate call for sympathy.

Luck in Mining.

The Nevada Transcript tells the following story, which illustrates in a peculiar degree the uncertainties of gold mining on a small

Some time about Good Friday last "Doc"
Wilkinson closed up the fish-market that he
had been running for several months in this
city. Business had become so dull in his line had been running for several months in this city. Business had become so dull in his line that some days he did not sell enough fish to pay for the gas he burned while keeping open evenings. A few days after suspending operations here he went over to Auburn, Placer county, and, being a miner of considerable experience in early days, made arrangements with a man by the name of Pike to open up a ledge about three miles this side of Auburn which the latter owned, "Doc" agreeing to work the claim on shares. The above information is the last that "Doc's" friends have heard of him until day before yesterday. Mr. Wilkinson had been sinking the incline on the ledge, taking out the quartz as he went down, but leaving the footwall, so as to avoid having much cab or waste rock when he came to have a crushing. The quartz showed some free gold, but not being a very thick ledge, the "Doc" concluded to sink down to water level before taking his rock to mill. He had gone down to the incline about 60 feet, and while putting in a set of timbers a large chunk of the footwall fell out, disclosing to the eyes of the a set of timbers a large chunk of the foot-wall fell out, disclosing to the eyes of the astonished miner another ledge behind the astonished miner another ledge behind the supposed foot wall, which was filled with gold. Of course further sinking was abondoned and attention directed to the new discovery. A force of men was immed-iately put to work on the newly discovered bonanza. Up to Wednesday morning \$20,000 worth had been raised to the surface, as was estimated by competent disinterested judges. In order to convince himself whether the rich ledge he had struck was only a pocket or not, Mr. Wilkinson went back up the incline a distance of 40 feet, and in half a dozen places where the cab was picked away from between the tim-bers, the same marvelously rich rock pre-sented itself. Some of the few who have been permitted to go down into the incline say that over \$100,000 is already assured to fortunate owners.

Illinois Coal.—Mr. William D. Rudy, of the Illinois Industrial University at Chamthe Ilinois Industrial University at Champaign, has just published a very interesting pamphlet on the coals of Illinois. In the introduction Mr. Rudy says: The coal area of the State of Illinois may be safely estimated, in round numbers, at 35,000 square miles, an area three times as large as that of Pennsylvania or Ohio, and constituting one fifth of the productive coal fields of the United States, not including what are termed the lignite basins of the Western territories. The coal measures of Illinois attain an aggregate thickness of 1400 feet, and may be divided into upper and lower measures, the latter of which, as a rule, contain the better

the work that was needed and business flourished from the start. Two years later he was rich enough to go to Philadelphia and buy a steam engine for a machine shop which he then had in operation at Port Carbon. Bush & Muhlenberg, from whom he bought it, sent one of their men, named bought it, sent one of their men, named their operations, as well as in erecting elsewhere some of the most massive machinery used in the country. The same firm in 1845 philadelphia employers soon had to find a prected a large machine shop and foundry at gold seekers to the new El Dorado, But Haywood & Co., and finally he purchased Silveroid .- We learn that Brown Bros.

Metals.

ANSONIA BRASS & COPPER CO.,

19 and 21 Cliff Street.

Adjoining Office of PHELPS, Dodge & Co.)

Sheet Brass, Sheet Copper, Copper Bottom, Erass Wire, Copper Wire.

Planished Brass,

Planished Brass,
Polished
Brass Door Rails,
Hayden's Patent
Brass Kettles,
Brass Tubing,
Lamp Burners,
Sun Burners,
Seamless Brass & Copper Pipe. Planished opper, Copper Rivets & Burs, Braziers' and Bolt

Corrugated Stove Platform. SEE PAGE 9.

Phelps, Dodge & Co., IMPORTERS OF

TIN PLATE,

Sheet Iron, Copper, Pig Tin, Wire, Zinc, etc.

MANUFACTURED OF

COPPER and BRASS. Cliff St., bet. John and Fulton,

NEW YORK.

DICKERSON, VAN DUSEN & CO., Importers of

Tin Plate, Pig Tin, Sheet Iron, Copper, Wire, Zinc, Etc. 29 & 31 CHff St., cor. Fulton, DICKERSON & CO.. Liverpool. NEW YORK

SCOVILL MFC CO

BRASS. HINGES, WIRE, CERMAN SILVER

PHOTOGRAPHIC GOODS.

BUTTONS, CLOTH AND METAL.

DEPOTS, 419 & 421 Broome St., N. Y. 112 Federal St., Beston. 183 Lake St., Chicago.

Waterbury, Conn New Haven, Conn New York City.

THE NEW HAVEN COPPER CO.,

255 Pearl Street, New York.

Braziers' & Sheathing COPPER.

Kettle Bottoms, Bolts, Circles, Rivets, Ingot Copper, Spelter, Solder, &c.

Pure Spelter

Cartridge Brass, Gas Fixtures, Bronzes AND ALL PINE WORK. Also for

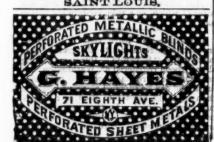
Galvanizers & Brass Founders. MANNING & SQUIER, Gen'l Agents 113 Liberty Street, N. Y.

Brass Goods Mfg. Co.,

280 Pearl St., N. Y., Manufacturers of Stamped Brass & Silvered Goods

PLATED ROSES,
THIMBLES,
ESCUTCHEONS, BRASS CAPS,
DROP BASES,
TABLES Patent Mirror Business Cards, The only indestructible and most attractive card, specially made for expositions, fairs, do. Patent Tin Handle Muclings Cape & Brushes. Special facilities for manufacturing small articles of new style and design to order.

R. SELLEW & CO. Dealers in METALS. Tin Plate, Sheet dron, Copper, &c. SAINT LOUIS,



Metals.



Waterbury Brass Co.

CAPITAL, - - \$400,000. JOHN SHERMAN, Agent,

296 Broadway, - - New York. Mills at WATERBURY, CONN. Sheet, Rolled and Platers' Brass,

GERMAN SILVER, Copper, Brass and German Silver Wire, BRASS AND COPPER TUBING,

COPPER RIVETS & BURS, BRASS KETTLES.

WASH BASINS, Door Rail, Brass Tags & Step Plates. PERCUSSION CAPS,

POWDER FLASES, Metallic Eyelets, Shot Pouches,

Tape Measures, etc.

00 %

MANHATTAN 83 Reade



Holmes, Booth & Haydens, WATERBURY, CONN.

NEW YORK.

49 Chambers St. 18 Federal St.

Brass, Copper & German Silver, ROLLED AND IN SHEETS.

BRASS & COPPER WIRE,

Tubing, Copper Rivets & Burs. BRASS & IRON JACK CHAIN, DOOR RAIL.

German Silver Spoons, SILVER PLATED FORKS & SPOONS. Kerosene Burners, &c

EDWARD MILLER & CO.,

SHEET BRASS. **Brass Kettles, Lanterns**

OILERS, KETTLE EARS, Spouts, Tinment! Trimmings, Keres Lamps, Burners, Trimmings, &c.

35 Warren Street, New York. Mill and Factories, Meriden, Conn.

JOHN DAVOL & SONS, Brooklyn Brass and Copper Co.,

Ingot Copper, Spelter, Lead, Tin, Antimony, Solder & Old Metals.

Pittsburgh Lead Pipe and Sheet Lead Works.

BAILEY, FARRELL & CO.,

167 Smithfield St., Pittsburgh, Pa., MANUFACTURERS OF

Lead Pipe.

Sheet Lead. Bar Lead,

Pig Lead,

Plumbers' Solder.

BALTIMORE

POPE, COLE & CO., Are now Purchasing

Copper Ores

and toughness. are prepared to buy Ores, Matte, Regulus and other se material in any quantities. Office, 57 South Gay St., Baltimore, Md. Of all suses straightened and cut to orese.

Metals.

The Plume & Atwood Mfg. Company,

MANUPACTURERS OF

SHEET and ROLL BRASS and WIRE,

German Silver and Gilding Metal,

Copper Rivets and Burs, Kerosene Burners,

Shoe Eyelets, Lamp Trimmings, &c. 80 Chambers Street, New York.

13 Federal Street, Boston.

Rolling Mill. Factories. THOMASTON. Ct. WATERBURY, Ct.

Bridgeport Brass Co.,

Sheet and Roll Brass, Brass & Copper Wire & Tubing, German Silver Metal and Wire, Copper and Iron Rivets.

OILERS and CUSPADORES, | LAMPS and TRIMMINGS, LANTERNS and TRIMMINGS. KEROSENE BURNERS. CLOCKS and CLOCK MOVEMENTS. Particular attention paid to cutting out Blanks and nanufacturing Metal Goods.

MANUFACTORY,
Bridgeport, Conn. 19 Murray St., N. Y.

New Jersey Wire Mill. HENRY ROBERTS.

Steel & Iron Wire SPECIALTIES:

Tinned Wire, Tinned Broom, Spring Wire, made from Bessemer Steel; Cast Steel and Iron Coppered Bail Wire; Rivet, Serew, Buckle, Umbreila, Fence, Brush, Gun Serew Wire; Sewing Machine and Ma-chinery Wire. Fine Wire for weaving. Also Wire of any shape made to order.

WIRE MILL, 39 Oliver St., Newark, N. J

Harrison Wire Company, ST. LOUIS, MO.

THOS. W. FITCH, Prest. and Treas.

All kinds of IRON WIRE

Wire Mill Specialties.

THE Gilbert & Bennett Mfg. Co.

GEORGETOWN, CONN., IRON WIRE, SIEVES AND WIRE CLOTH.

Power Loom Painted Screen Wire Cloth, GILBERT'S RIVAL ASH SIEVE, Galvanized Twist Wire Netting. THE UNION METALLIC CLOTHES LINE WIRE

Warehouse, - 273 Pearl St., New York

THE TRENTON IRON CO., JAMES HALL, Treas. CHAS. HEWITT, Pres

IRON & WIRE.

Bar Iron. Wire Rods. Brazier Rods. Market Wire, Screw Wire, Fense Wire, Bridge Wire, Ball Wire, Square and Flat Wire, Cast Steel Wire. Weaving Wire, Spring Wire, Telegraph Wire, Chain Wire, Buckie Wire, Tinned Wire, " Martin" Steel Wire GUN SCREW IRON WIRE.

FENCE STAPLES,
Wire straightened and cut to lengths. It COOPER, HEWITT & CO., 17 Burling Slip.

Geo. W. Prentiss & Co., HOLYOKE, MASS.,



Bright, Coppered, Annealed and Til. Plated. Also GUN SCHEW WIRE.

Belive, etc.

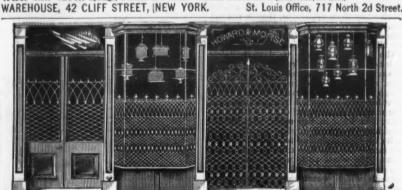
CHAS. F. WASHBURN. PHILIP L. MOEN,
President & Treasurer.

WASHBURN & MOEN MANUFACTURING

WASHBURN WORCESTER, MASS. PHILIP L. MOEN.

Iron and Steel

Patent Steel Wire Bale Ties. DDS of all Grades; Round Iron, Rivet quality, 2-16 in. to % in., cut so ft he PATENT CONTINUOUS ROLLING MILL, pro quide, without sax so well. Patent Galvanized Telegrapi ce and Grape Wire in long lengths; Coppered Pall-Bail Wire; Rope, ce. Wire for the manufacture of Card Clothing, Heddies, Reeds, n Wire and Tinned-piated Wire of all sizes. A specialty is made of wire, and Redned Wire to Fattern for particular purposes, from a rnished, Annealed, Bright, Polished, Copper any length. Steel Crincline Wire, Pate Forings, Needles and Drills. Market Stee



NATIONAL WIRE AND LANTERN WORKS. Warehouse, 45 Fulton Street, New York.

HOWARD & MORSE, Brass, Copper and Iron WIRE CLOTH,

Locomotive Spark Wire Cloth, Iron Wire Bolting Cloth, Ship and Railroad Lanterns, Signal Lights, Conductor's Lantern

ADJUSTABLE GLOBE HAND LANTERN, Desk and Office Railing, Riddles, Coal and Sand Screens, Nursery Fenders and Spark Guards, Ornamental Wire Fence.

LLOYD HAIGH,

Cast Steel, Bessemer Steel & Iron Wire

OF EVERY DESCRIPTION WIRE ROPE FOR Mines, Elevators, Inclined Planes, Derricks, Stays, Ship Rigging,
Sash Cord, CALVANIZED WIRE CLOTHES LINES.

SUSPENSION BRIDGE CABLES. Bright, Coppered, Annealed, Tinned, Bivet, Spring, Machinery, Chain, Buckle, &c.

Also Fence and Vineyard Wire. Galvanized Steel Barb FENCING WIRE, Plain and twisted, and Staples. Galvanized Telegraph Wire, Patent Tempered Cast Steel Furniture Springs, OFFICES-81 John St., New York. WORKS-South Brooklyn.

For Hoisting, Running & Standing Ropes, Ferries, &c.

Address, HAZARD MFG. CO., Wilkesbarre, Luzerne Co., Pa.

WORKS

TRENTON,

ROEBLING'S

New York Office Warehouse 117 Liberty Street.

THE JOHN A. ROEBLING'S SONS CO.,

GALVANIZED

WIRE ROPE

Iron, Steel and Copper,

Hoisting Purposes of all kinds, for Ferries, Stays, Ship Rigging, Sash Cords, Lightning Rods, &c., &c. Suspension Bridge Cables.

Telegraph Wire, Market Wire, Vineyard Wire.

Iron and Steel WIRE

Market Wire, Fence Wire Bridge Wire, Chain Wire, Buckle Wire, Spring Wire, Rivet Wire, &c., &c.

CALVANIZED WIRE CLOTHES LINES.

W. S. ESTEY,

Wire Cloths, Wire Goods and Wire WORK of every description. Galvanized Twist Netting for Fencing Henneries c. Foundry Riddles and Steel Casting Brushes. 50 Fulton Street, New York.

THE WORCESTER WIRE CO., Cambridge St., Worcester, Mass. MANUFACTURERS OF

IRON AND STEEL WIRE

OF EVERY SIZE AND GRADE. Classification List mailed on application, 254 Pearl St.,

NEW YORK.

Our cages can be



O. LINDEMANN & CO. Japanned, Brass and Silver Plated Bird Cages. **Bright Metal** Cages, solder.



Extra Large Iron Roller. NICKEL PLATED.

Shepard Hardware Co., MANUFACTURERS.

Grant Fan Mill & Cradle Co.

Grant's Grain, Coffee, Rice, Cochineal and Pimento Fans,



and
TURKEY WING GRAIN CRADLES,
4, 5 and 6 fingers.
GRAPE VINE GRAIN CRADLES,
4 fingers.
SOUTHERN PATTERN GRAIN, chaptes, Al of a superior quality. None enuine unless marked Grant ion Mild Cradle Co. Send for lustrated catalogue & price list. P. O. Address, Melrose, Remsselser Co., N. Y.

The Patent Combined Dinner-Pail



Lantern. The most perfect Dinner Pai the world. Hot coffee for mer and a Lantern at night. Manufactured by JOS. HAIGHT, PORT CHESTER, N. Y



A. F. PIKE East Haverhill, New Hampshire, Manufacturer and Wholesale Dealer in

t.

Scythe, Axe, Knife and Hacker STONES LETOILE, UNION,



S. L. SAMUEL, Hardware Manufacturers' Agent For EXPORT.

57 Codar Street,

NEW YORK.

CARY & MOEN,

Manufacturers of
STEEL WIRE for all purposes, and STEEL SPRINGS of every description.

Market Steel Wire, Crinoline Wire, tempered and covered Also Patent Tempered Steel Furniture Springs, constantly on hand.

Patented.

Reduction in Price.

Our large production of this article enables us to reduce prices, as will be noted below. This Pipe s rapidly gaining in favor and must eventually supersede the old style entirely. Made wholly by machinery, every joint is exactly alike, and all fit together with perfect accuracy. A child can adjust it, no tools being required. It is indispensable in the household on this account. Fifty joints of 5 inch Pipe can be packed in a case 10 inches square by 24 inches long inside, thus occupying hardly more room than Tin Plate, and securing the lowest rates of freight. The following are net cash prices, no charge for cases: 5 in., per joint, 11C.; 6 in., per joint, 12C. Other sizes in proportion. Sole manufacturers for the United States

THE CHICAGO STAMPING CO.

We shall remove May 1st to Nos. 10, 12 & 14 Lake St., Chicago.

SINGER, NIMICK &

MANUFACTURERS OF ALL KINDS OF

HAMMERED AND ROLLED

EE

Warranted Equal to any Produced.

BEST REFINED TOOL CAST STEEL

For Edge and Turning Tools, Taps, Dies, Drills, Punches, Shear-Knives, Cold-Chisels and Machinists, Tools generally.

SAW PLATES

For Circular, Mulay, Mill, Gang, Drag, Pit and Cross-Cut Saws.

Sheet Steel

For Springs, Billet Web and Hand Saws, Shovels, Cotton Gin Saws, Stamping Cold, &c., &c.

SIEMENS-MARTIN (Open-Hearth) PLATE STEEL

For Bollers, Fire-Boxes, Smoke Stacks, Tanks, &c.

All our Plate and Sheet Steel being rolled by a Patented Improvement is unequaled for surface

ROUND MACHINERY CAST STEEL For Shafting, Spindles, Rollers, &c., &c.

File, Fork, Hoe, Rake, R. R. Frog, Toe-Calk, Sleigh-Shoe and Tire Steel, &c.; Cast and German Spring and Plow Steel.

"Iron Center" Cast Plow Steel,
"Soft Steel Center" Cast Plow Steel,
"Solid Soft Center" Cast Plow Steel,
Steel Forgings made to order.

"Finished Rolling Plow Coulters with Patent Screw
Hubs attached.
Agricultural Steel cut to any pattern desired.

Represented at 59 BEEKMAN ST., NEW YORK, by HOGAN & BURROWS, Gen'l Agents for Eastern and New England States.



THE METAL STAMPING & ENAMELING CO.,



Windsor The OIL STOVE.

The first application of scientific principles applied to produce absolute safety from explosion or accident. The hydrostatic column, supplied from the water pan, and supplying water to the bottom of the oil reservoir as the oil is consumed, not only keeps the reservoir solid full, so as to afford no space for the accumulation of explosive vapors, but also raises the oil in the wick tubes so near the flame that a uniform heat is insured.

The most that can be said of any other Kerosene Stove is that it may not explode. The least that can be said of the Windsor Stove is that it cannot explode.

explode.

It affords a good margin to the dealer, and its
merits make it the easiest stove to sell and the
most satisfactory to the buyer.

W. A. HULL & BRO.,

35 Park Place, New York.

Tho Currency of China.

(Concluded.)

Chinese assaying establishments are called ungkoo. They are not found in all the Kungkoo. They are not found in all the cities of the empire, nor even in many of the most important. Mr. Billequin, Professor of Chemistry in the Imperial College of this city, is of the opinion that very little silver is refined here. In a report of the United States Consulat Newchwang, made in 1870, he states that "There is no kungkoo here, anyone who chooses may fabricate ingots of silver, and the only check upon such persons is their fear to lose their reputation for

honesty."
The Commissioner of Customs at Chefoo reported in the same year that "serious inonvenience, delay and losses have resulted to foreign merchants from the quantity of inferior sycee in circulation. To remedy this a kungkoo has been established, but the ountry buyers refuse to recognize it, and country buyers refuse to recognize it, and suspension of business with the interior has resulted." In 1865 the commissioner at Hankow wrote: "In the early days of this port the demand for sycee was so sudden and extensive that Shanghai was unable to supply standard sycee in sufficient quantities. It thus arose that sycee of an inferior quality was transmitted to this port, and on its being found that adulterated silver was its being found that adulterated silver was accepted as equivalent to standard, the practice originally exceptional became the rule, and sycee, depreciated to the extent of two, three or even four mace per shoe, was regu-larly manufactured for the Hankow market. About two years ago an attempt was made to establish a kungkoo, or assay office, which was unsuccessful, and the failure was followed by an enormous increase in the depreciation of silver. It was not, however, until the present month that an assay office, duly recognized by the Chinese and the con-

sular authorities, was opened."

In the absence of assay offices the Chinese rely upon the touch. Le Compte, writing in 1790, says what is equally true at this day: "They are so expert in guessing at the goodness of any piece of silver by looking on it cally that they are solden write to be a second to the control of the cally that they are solden write to be a second to the cally that they are solden write to be a second to the cally the call t it only that they are seldom mistaken, especially if it be melted after the manner practiced by them. They know the goodness in three ways—by the color, by small holes which were made in melting, and by the small circles which the air makes on the surface of the metal when If the color be white, the holes it cools. small and deep—if the circles be many, and those close and very fine, especially toward the center of the piece, then the silver is pure, but the more it differs from these then, it is the more it differs from these pure, but the more it diners the three indications so much the more alloy it

has."
While it appears that uncertainties arising from the multiplicity of standards, the im-perfect construction of scales and the de-fective means of testing the quantity of silver must prove a great source of annoyance to those who have occasion to use the metal, in one way and another fairly accurate re-sults seem to be reached. This is the case, at least, as between the open ports. There is, of course, frequent occasion to remit bullion from the northern and riverine ports to Shanghai. I am informed that such remittances almost invariably result according to the expectations of shippers.

It follows from what has been said, that however defective may be the test of silver and of the scales by which it is weighed, no such failures attend its use for purposes of a currency as have been experienced in the case of the copper currency already de-

That silver is the real standard of value is well understood by the Chinese. We have seen that a cash is supposed to be the one-thousandth part of a tael of silver. This is the declaration of the government and indicates the view taken by it. But cash pass among the people for just so much as they consider them worth, having regard to their intrinsic value and their conregard to their intrinsic value and their convenience as a medium of exchange. The government, recognizing its failure to keep the coin up to standard, has accepted the action of the people and receive cash in payment of taxes only at the exchange current among them. The dues collected at the foreign customs are in silver, and remittances from the provinces to the capital are in silver. from the provinces to the capital are in silver or in bankers' bills calling for silver. The penal code provides that soldiers and citizens shall not use in their houses any utensils of copper save as are permitted by the law, and that any excess shall be given over to the government at a stated price in silver. Importations of copper from Yun-nan are similarly not to cost more than a tated price in silver.

What has been said will indicate the position of cash and silver in the Chinese cur-rency. It remains to speak of gold. It cannot be doubted that the latter forms

a part of the currency, but this is true only to a limited extent. It is more properly a merchandise which is bought and sold in the The tendency throughout Asia is to place

a lower relative value upon gold than pre-vails in Europe and America. In China this tendency has been a normal one and not the result of legislation, for in one sense gold and silver are equally articles of commerce—that is to say, neither has been coined. The case has been different in Japan, gold and silver having been long coined there.
At the date of Commodore Perry's treaty gold, judged by the face value of coins in circulation, was worth only five times as much as silver. It is understood that the government received the whole production of the mines, and as no considerable import or export of the precious metals was allowed, it was able to establish their relative value by decree.

Quotations of these metals in China and Japan must be received with the reservation that one cannot be sure how far pure gold has been weighed against pure silver. I think that, as a rule, the gold is purer than the silver.

Rondot gives the following table :

Years.	City.	Gold.	Silve
1285		K	10
X375	** ****	*	4
1770	Peking	1	17
1810	Canton	x	10
1891	Peking	K	21
1844	Canton	1 .	17
2845	Canton	1	16
(B)	4 . 42 . 4		*

These quotations are so widely and irregu-

larly at variance that their accuracy may be greatly questioned. It is the general fact, however, which is in point, and regarding this the two following quotations are sufficient:

Lecompte, writing in 1600, says: "Europeans make a good market of gold, because in China a pound of it bears but the same proportion to a pound of silver as one to ten, whereas among us it is one to fifteen." Sir George Staunton, writing a century later, made the following statement: "In general, the value of silver has borne a much greater proportion to that of gold in China than in Europe, excepting when an extraordinary demand for the latter by foreign merchants has increased the rate of it."

I have been at some pains to collect statistics of the relative values of the metals for recent years. The general result shows that while the markets have been sensitive to the European demand, there have been some wide fluctuations. The lowest quotasome wide nuctuations. The lowest quotation in the last 30 years is 1 to 12.8, (at Shanghai in 1855), the highest is 1 to 17.5 (at Peking in August, 1876).

There is here an exchange for the purchase and sale of gold at which the price is determined for the day. Whether similar

determined for the day. Whether similar exchanges may be found in other cities I do not know. I imagine, however, that there is relatively more gold in circulation at Peking than at other leading points, for the reason that a great deal of trade with Mongolia, Central Asia and Siberia centers here, bringing in that metal, and that persons of the official class coming here for greater or the official class coming here for greater or the ordered class comming here are greater or less periods find it more convenient to carry than silver. There is a constant flow of gold in commerce from the northern ports to Shanghai and the south, but the quantity

gold in commerce from the northern ports to Shanghai and the south, but the quantity of it so moved is not great.

Paper obligations of one kind and another take an important place in the currency of the empire. None of this, so far as I know, is issued or sanctioned by the government, and all issues which are intended for currency purposes are to be classed as "shin plaster" paper, as the American term is. Probably, however, 75 per cent. of the smaller business of Peking is transacted with such paper. In some cities, as at Shanghai for instance, it is never seen. Foochow has long enjoyed prominence in the use of paper money, and it is likely that the practice followed here and in that city will be found to exist in many others. One author says: "Bank notes, payable to bearer, are in use throughout the empire, and are issued by the great houses of business, and accepted in all the principal towns." At Shanghai, by far the greater part of the merchandise purchased by Chinese from foreigners is paid for by orders drawn by the native bankers on themselves, and having usually ten days to run. Formal bills of exchange drawn by bankers in one city upon those in others are greatly used. At times a considerable part of the revenue transmitted to Peking from other parts of the empire has been sent up in this way.

It may be assumed, I think, that paper in

the empire has been sent up in this way. It may be assumed, I think, that paper in its different forms takes the place of silver and cash in the transaction of business generally to a very considerable extent, and that this result is largely due to the facts that cash are inconvenient to handle, and that the use of silver is attended with difficulties

not met with where a coinage system exists.

The failure of the Chinese to coin precious metals is due to a variety of reasons. Du Halde says quaintly: "It is easy to judge that there would be many debasers of money in China if silver was coined, since the small pieces of copper are so often counter-feited." Dr. Williams says: "Silver and gold coin were both used in China at differ-ent periods of her ancient history, but never have been issued by the present or any modern dynasty. A consciousness of their inability to maintain the standard alloy and weight throughout their vast domain, and a knowledge of the facility with which the coins could be counterfeited, combined with their ignorance of the advantages of a gold and silver currency and a disposition to meddle with the coinage, explains why the Manchus have never attempted to circulate silver coins." Issues of silver, moreover, could be made only at or near the intrinsic value of the metal used. Upon such issues the government could make but small profit, while as we have seen the profit upon issues of cash is very great.

It cannot be supposed, however, that the Chinese are different from other people in their need for and their capacity to appreciste a currency convenient in form and based on value. The Mexican dollar is much used at Shanghai, and it is always at few months from 72.5 to 82.4 per cent. of the local tael, a range of 10 per cent. nearly, in the relative value of silver conveniently coined and silver as bullion. Twenty years ago the Carolus dollar came to be with the tael. At Canton, dollars a At Canton, dollars although with the taoi. At Canton, dollars although passed by weight, are generally, as we have seen, at a small premium over bullion. In this city they pass freely, but at a slight discount. At Tientsin, as I am informed, they have sometimes been in such demand that it would pay to import them from Shanchei Experience they are I believed. Shanghai. Experience shows, as I believe, that if the supply of foreign dollars were constant and sufficient they would come to be the money of account at all the open ports.

In making this statement I am aware it involves the proposition that the government would have no serious difficulty in establishwould have no serious dimentry in establishing a mint and in putting out coins of determined value. They would need only to offer such money to their people to have it accepted. It would not be necessary to declare it legal tender, but on the contrary, clare it legal tender, but on the contrary, better that this should not be done, saving in respect of customs dues. At first, doubtless, it would be regarded with suspicion, as less, it would be regarded with suspicion, as anything is in China which is strange. The readiness of the government to receive it would commend it greatly to the people, and their freedom to receive or to reject it would dispel doubt. The absence of legal would dispel doubt. The absence of legal tender laws would prevent any movement to debase the coin, for so soon as debased the people would discover and reject it. Well executed coins would be so difficult to counterfeit as to prevent danger of this kind. In point of fact, all the reasons would exist for the acceptance of such coins which have induced the acceptance so widely of NEW YORK.

OGDEN & WALLACE,
Successors to GAM'L G. SMITH & CO.,
IRON & STEEL,
85,97,89 & 91 ELM ST., N. Y. COMMON AND REFINED

BAR IRON. SHEET AND PLATE IRON, MOOP, BAND AND SCROLL IRON, Rod and Horse Shoe Iron, Angle and T Iron,

Swedes and Norway Iron, Norway Nail Rods.

PIERSON & CO.,

24 & 26 Broadway, 77 & 79 New St., NEW YORK CITY.

"PICKS" of all kinds, **ESOPUS" HORSE SHOE IRON** BEAMS, ANGLES,

Tees, Channels, Sheets, Plates.

IRON & STEEL.

J. H. JACKSON & CO., 206 & 208 Franklin St., N. Y.,

Importers and De IRON and STEEL.



JOHN A. GRISWOLD & CO'S Bessemer Steel. MACHINERY STEEL Cast Steel and SPRING STEEL, ANGLE and T IRON. Special Irons for Bri Architectural Work.

ABEEL BROTHERS.

Iron Merchants, 190 South Street and 365 Water, N. Y.

ULSTERIRON

A full assortment of all sizes constantly on hand, Horse-Shoe Iron, Common Iron. Band, Hoop and Scroll fren.

Sheet Iron. Norway Nail Rods. Norway Sha es Cast, Spring and Tire Steel, etc.

A. R. Whitney,

48, 50 & 52 Thomas, and } NEW YORK.

Our specialty is in Manufacturing Iron Used in the Con-struction of Fire-Proof Buildings,

Bridges, &c.
Plans and estimates furmished, and contracts made for erecting Iron Structures of every description. I ooks containing cuts of all Iron made sent on application by mail.
Sample pieces at office. Please address
58 Hudson Street.

BORDEN & LOVELL. **Commission Merchants**

70 & 71 West St.,

Wm. Borden, t New York.

Fall River Iron Co.'s Nails, Bands Hoops & Rods

Borden Mining Company's Cumberland Coals.

WILLIAM H. WALLACE & CO., IRON MERCHANTS

Cor. Albany & Washington Sts., NEW YORK CITY.

WM. BISPHAM DANIEL F. COONEY, se of and Successor to Jas. H. Heldane & Co. SS Washington St., N. Y.

BOILER PLATES and SHEET IRON. LAP WELDED BOILER FLUES.
Boller Rivets, Angle & T Iron, Cut Nails & Spikes. Agency for Pottatown Iron Co., Viaduct Iron Works Agency for Pottatown Iron Co., Viaduct Iron Works, Lobahon Rolling Mills, Pine Iron Works, Laurel Iron Works, The Bergen Rolling Mills, at Jersey City.

OXFORD IRON CO.,

Cut Nails and Spikes, R. R. Spikes, Splice Bars and

Nuts and Bolts, 81, 83 & 85 Washington, near Rector St. N. Y. JAMES S. SCRANTON, Agent.

Fron.

NEW YORK

G. HUERSTEL. IRON and STEEL,

Sole Agent for Sweet's Ton Call's Also SPRINGS, AXLES AND BOLTS.

A. B. Warner & Son, IRON MERCHANTS.

28 & 29 West and 52 Washington Sts. BOILER PLATE,

Belier Tubes, Angle, Tee & Girder Iron, Belier and Tank Rivets. Sole Agents for the celebrated "Eureka," Pennocks.

"Wawasset," Lukens, Brands of Iron. Also all descriptions of Plate, She and Gasometer Iron. Special attention to Locomout Iron. Fire Box Iron a specialty.

POWERVILLE

JOHN LEONARD, & 451 West Street, NEW YORK.

Manufacturer of Best Quality

HORSE SHOE IRON And HOOPS. Also Best Quality Cold Blast Charcoal Scrap Blooms, And Dealer in OLD IRON.



MARSHALL LEFFERTS, 90 Beekman St., New York City, MANUFACTURER AND DEALER.

Galvanized Sheet Iron, 1st and 2d Qualities.

nized Wire, Telegraph and Fence; Galvanized and Band Izon, Galvanized Rod and Bar Iron ized Nails, Galvanized Chain, Galvanized Iron

CORRUGATED SHEET IRON For Roofing, &c., Galvanized, Plain or Painted. Best Charcoal, Best Refined and Comme SHEET IRON.

Plate and Tank Iron, C No. 1, C H No. 1, C H No. 1 Flange, Best Flange Best Flange Fire Box, Circles.

BOILER IRON Stamped and Guaranteed.

All descriptions of Iron Work Galvanized of Tinned to order. Price list and quotations sent upon application.

Dan'l W. Richards & Co.,

SCRAP IRON, Pig Iron,

OLD METALS 88 to 104 Mangin Street,

Foot of Stanton St., E. R., NEW YORK.

JAMES WILLIAMSON & CO., SCOTCH AND AMERICAN

PIG IRON,

No. 69 Wall St., New York.

W. J. Carmichael, Iron & Steel Boiler Plate.

Lap Welded Boiler Tubes, &c., &c. 130 & 132 Cedar Street, New York. Aron.

NEW YORK

John W. Quincy, 98 William Street, New York.

Anthracita & Charcoal Pig Irons. Wrought Scrap, Cut Nails, Copper,

BLOCK TIN, LEAD, SPELTER, ANTIMONY, NICKEL, &c

Fuller Mills and Anchor CUT NAILS.

HOT PRESSED NUTS. BOLTS, WASHERS, &c.

Fuller Brothers & Co., 139 Greenwich Street, New York.

HARRISON & GILLOON IRON AND METAL DEALERS,

60, 562 WATER ST., and 302, 304, 306 CHERRY ST., NEW YORK.

have on hand, and offer for sale, the following:
Scotch and American Pig Iron, Wrought, Cast and
Machinery Sorap Iron, Car-Wheels, Axles and Heavy
Wrought Iron; also old Copper, Composition, Brass,
Lead. Pewter. Zinc, &c.

BURDEN'S HORSE SHOES

"Burden Best" Iron

Boiler Rivets.

Burden Iron Works, H. Burden & Sons,

Troy, N. Y.

B. F. JUDSON. Importer of and Dealer in SCOTCH AND AMERICAN

Wrought & Cast Scrap Iron,

OLD METALS.

457 & 459 Water St., NEW YORK. Passaic Rolling Mill Co.,

PATERSON, N. J. Iron Bridge Builders

Beams, Channels, Angles, TEES.

Merchant Iron, &c., &c. New York Office, 138 Chambers Street.

WATTS COOKE, President. W. O. FAYERWEATHER, Treasurer, CHAS. O. BROWN, Engineer P. W. GALLAUDET

Banker and Note Broker, Nos. 3 and 5 Wall Street. NEW YORK.

HARDWARE, METAL, IRON, RUBBER, SHOE, PAPER AND PAPER-HANGINGS, LUBBER, COAL AND RAILROAD PAPER WANTED. ADVANCES MADE ON BUSINESS PAPER AND OTHER SECURITIES.

Moseley Iron Bridge & Roof Co. CORRUGATED IRON

Buildings, Roofs, Shutters Doors, Iron Sashes, Skylights, &c. 5 Dey Street, New York.

POTTSVILLE SPIKE, BOLT AND NUT WORKS.

RAILROAD SPIKES,
MACHINE FORGED NUTS,
TRACK BOLTS &c.

CEO. D. ROSEBERRY, Manufacturer, Pottsville, Pa. LEECHBURG IRON WORKS.

KIRKPATRICK, BEALE & CO. FINE SHEET IRONS,

(Refined, Cold Rolled, Show Card, Stamping, Tea Tray, Polished, Shovel.

TIN AND TERNE PLATES, made with Natural Gas as fuel.

Fron.

PITTSBURGH.

WOOD & CO.'S



PATENT Planished Sheet Iron.

Patented March 14th, 1865; April 8th, 1873; Sept. 9th, 1873; Oct. 6th, 1874; Jan. 11, 1876 aranteed fully equal in all respects to the

IMPORTED RUSSIA IRON, at a much less price. FOR SALE,

by all the principal METAL DEALERS

In the Large cities throughout THE UNITED STATES. And at their Office.

111 Water Street, PITTSBURGH, PA

A. G. HATRY COYNE & HATRY,

Patentees and Manufacturers **Automatic Nail Selectors.** IMPROVED CUT NAIL MACHINES,

And Nail Factory Supplies. WORKS, cor. 90th & Mulberry Sts., OFFICE, No. 114 & 115 Water St., Pittsburgh, Pa

JUNIATA



HORSE SHOES.

Nails and Spikes, Pig Iron, STEEL TOE CALKS. Horse Shoe Bar

AND SHEET IRON. SHOENBERGER & CO.

Fran.

PITTSBURGH.

PORTER C. FRIEND. A. G. HATRY. HATRY & FRIEND.

Commission Merchants AND DEALERS IN

Bar, Sheet, Tank, Boiler, Angle, T, and Railroad Iron,

Nails & Spikes, Steel & R. R. Supplies. WINDOW GLASS, GAS PIPE & BORAX. PITTSBURGH, PA.

SOHO IRON MILLS

Moorhead & Co.,

Pittsburgh, Pa.

MANUFACTURERS OF

One to Fifteen Inches Thick

Ten and a Half Feet Wide and Fifteen to Twenty Feet Long.

UNION FORGE AND IRON MILLS.

Wilson, Walker & Co.,

Pittsburgh, Pa. Manufacturers

UNIVERSAL MILL PLATES For Bridges, Pipes, &c. SHAFTING, DRAWBAR IRON, MERCHANT BAR IRON, &c., &c. Also

HEAVY AND LIGHT FORGINGS Of all kinds FOR CARS, LOCOMOTIVES AND ENGINES, Including Drawbars, Axles (either hammered or rolled), Driving Axles, Locomotive Frames, Steamboat Shafts, Cranks, Propeller Frames, Oil Tool Forgings

C. KANE. SCRAP IRON.

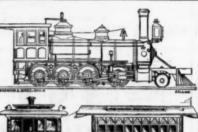
CAR SPRINGS, CAR AXLES, CAR WHEELS, OLD RAILS, A SPECIALTY. Also Bar Iron, Pig Iron and Blooms sold on commission. Duquesne Way, near 6th St., Pittsburgh, Pa.

The U. S. Iron & Tin Plate Co. OFFICE: 112 Smithfield St., Pittsburgh, Pa. WORKS at Demmler Station B. & O. R. R., Pgh., Div.

MANUFACTURERS OF THE Home Made U. S. CHARCOAL TERNE PLATES.

Stamping Iron, Show Card Iron, Taggers, Bessemer Steel Plates and Shovel Iron.

Stove Pipe Iron cut to size. Special sizes of Pickled and Cold Rolled Iron nade to order. Send for specification and price list.



BALDWIN LOCOMOTIVE WORKS. BURNHAM, PARRY, WILLIAMS & CO., Proprietors. Philadelphia, Pa., U. S. A.,

Manufacturers of LOCOMOTIVE ENGINES

of every Description. Catalogues, photographs and estimates fur-ished on application of customers. NOISELESS STEAM MOTORS,

For city and suburban Railways. These machines are nearly noiseless in operation; show no smoke with the use of anthracite coal or coke as fuel, and show no steam whatever under ordinary conditions of service. They can be run at two or three times the speed of horse cars and draw additional cars. Circulars with full particulars supplied.

ZUG &

Pittsburgh, Pa.,

Wheeler's Iron & Steel Combination Shafting,

Under license of the Combination Trust Co., Philadelphia. This Shafting is superior to any now on the market, and the attention of machinists is particularly called to it and a trial order solicited. Prices furnished on application.

HOUDLETTE & ELLIS.

19 Batterymarch Street, - Boston, Mass, MANUFACTURERS' AGENTS AND DEALERS IN

Homogeneous Steel and Iron Boiler Plates. SHEET and TANK IRON-BOILER, TANK and SAFE RIVETS. Best Lap - Welded Iron Boiler Tubes,

Wrought Iron Girder, Deck & Channel Beams, Angle, T and Grooved Iron, "WALKER'S" FORGED AND HAMMERED HORSE SHOES

PLU

MANUFACTURERS' FOUNDRY GER AME GRA

Fron.

PHILADELPHIA.

Siemens' Regenerative Ship Brokers & Commission Merchants, **GAS FURNACE**

119 S. Fourth St., PHILADELPHIA, PA.

A. PURVES & SON. Corner South & Penn Streets, Phila.,

Scrap Iron & Metals, Machinery, Tools, Shafting & Pulleys Steam Engines, Pumps & Boliers Copper, Brass, Tin, Babbit Metals, Foundry Facings. Best Quality Ingot Brass.

Cash paid for all kinds of Metals and Tools

Fron.

PHILADELPHIA.

Old Iron, Metals and Rags. Freight engagements made to all parts of the we farine insurance effected in reliable offices. 108 Walnut St., Phila

LEVIS & KIMBALL, Manufacturers' Agents

For Iron and Steel Rails, Car Wheels, Boiler and Sheet Iron and General Railway Equipments. Old Rails, Axles, and Wheels bought and sold. 261 S. 4th St., Philadelphia.

CHESTER IRON COMPANY,

Magnetic Iron Ore.

The "BLUE" (Red Short) and "RED" (Neutral) Bessemer Ores, from Hacklebarney and Chester, New Jersey.

Price "Blue" Ore hand-broken and selected for July is \$2.50 cash, f. o. b. Hacklebarney Mines.

J. WESLEY PULLMAN, Treas., 407 Walnut St., Philadelphia.

The Cambria Iron and Steel Works.

RAILS.

have now an annual capacity of

100,000 Tons of Iron and Steel Rails, Splice Bars, &c. ADDRESS.

CAMBRIA IRON COMPANY,

No. 218 South 4th Street, Philadelphia.

Or at the Works, JOHNSTOWN, PA. Or J. S. KENNEDY & CO., New York Selling Agency, 41 Cedar St., N. Y.

THE PHŒNIX IRON

410 Walnut Street, PHILADELPHIA.

CURVED, STRAIGHT AND HIPPED Wrought Iron Roof Trusses, Beams, Girders & Joists,

DECK BEAMS, CHANNEL, ANGLE AND T BARS PATENT WROUGHT IRON COLUMNS, WELDLESS EYE BARS.

For Top and Bottom Chords of Bridges.

Railroad Iron, Street Rails, Rail Joints and Wrought Iron Chairs.

REPINED BAR, SHAFING, and every variety of SHAPE IRON made to Order
Plans and Specifications funished. Address,

SAMUEL J. REEVES, President.

The Standard Steel Works.

LOCOMOTIVE AND CAR WHEEL TIRES,
Manufactured from the celebrated OTIS STEEL.

BRAND # STANDARD. #

Quality and efficiency fully guaranteed. Prices as low as any of the same quality. We manufacture Heavy and Light Forgings, Driving and Car Axles, Crank Pins, Piston Rods, Etc.

Office, 220 S. 4th St., Philadeiphia, Pa



JAS. ROWLAND

Kensington Iron, Steel & Nail Works,

920 North Delaware Ave., - - PHILADELPHIA,

Manufacturers of the

Anvil Brand Refined Merchant Bar Iron

Also, the James Rowland & Co. Kensington Nails, cut from their Also, the James Robinal & Co. Relatington Natis, cut from the Refined Anvil stock. Also, Plow and Cultivator Steel, Rounds Equares, Flats, Bands and Hoop Iron. Correspondence with Dealers solicited.

PENCOYD IRON WORKS.

P. ROBERTS & Manufacturers of CAR AXLES.

BAR, ANGLE, TEE AND CHANNEL IRON.



FOUNDRY FACINGS.

MANUFACTURERS' FOUNDRY





BITUMEN, ANTHRACITE, CHARCOAL, MINERAL.

SHOVELS. BRUSHES. CRUCIBLES,

MACHINERY SAND, BRASS CHANDELIER " STOVE PLATE "

OULDIN

J. W. PAXSON & CO. State, 516 and 518 Beach St., Philadelphia, Pa.

Fron.

H. E. COLLINS & CO...

Manufactured IRON, NAILS

STEEL.

Pig Iron, Iron and Steel Rails, METALS.

Railway Supplies, Old Rails and Railway Scrap,

PITTSBURCH, PA.

Edward J. Etting.

IRON BROKER AND COMMISSION MERCHANT, 230 S. Third St., Philadelphia, Pa. CENTRAL IRON WORKS, - Harrisburgh, Pa.

Boiler Plate, Tank Iron, &c., PIG, BAR AND RAILROAD IRON. Old Rails, Scrap, &c.

STORAGE WHARF & YARD. VARE AVENUE ABOVE CALLOWHILL STREET d by track with railroad

The Iron-Masters'

Analysis of Ores of Iron, Pig and Manufactured Iron, Steels, Limestone, Clays, Slags and Coal for Practical Metallurgical Purposes.

No. 339 Walnut St., Philadelphia. J. BLODGET BRITTON.

This laboratory was established in 1866, at the instance of a number of practical Iron Masters, expressly to afford prompt and reliable information upon the chemical composition of the substances above mentioned, for smelting and refining purposes. The object being to make it at once a convenient, practically useful, and comparatively inexpensive adjunct to the Furnace, Forge and Rolling Mill.

CHARGES TO IRON WORKS.

For each additional courrence or difficult to determine, the charge must necessarily depend upon circumstances.

For determining the per cent. of Sulphur or Phosphorus in Iron or Steel.

For each additional constituent of usual occurrences. For the per cent. of Carbonate of Lime, and insoluble Silicious Matter in a Limestone...

or each additional constituent.....or the per cent. of Water, Volatile Combustible Matter, fixed Carbon, and Ash in Coal. For determining the constituents of a Clay, Slag, oke, or of an Ash in Coal the charges will corresond with those for the constituents of an ore.

For a written opinion or letter of instruction the charge must necessarily depend upon circumtances.

stances. Printed instructions for obtaining proper average amples for analysis furnished upon application.

BOSTON ROLLING MILLS

Manufacture tra quality small kods, from best selected Scrap Iron SWEDISH AND NORWAY SHAPES,

Nati and Wire Rads. Horse Shoe Iron, Hand Made Horse Shoes & the Boston Horse Shoe.

80STON ROLLING MILLS, W. B. ELLIS, Treas.
Office, 17 Batterymarch St., Boston.

BRADLEY, REIS & CO., NEW CASTLE, PA.,

PLATE & SHEET IRON OFFICE, at Works.

Bonnell, Botsford & Co., Iron, Nails & Spikes.

VOUNGSTOWN, OHIO.

Spooner & Collins, COMMISSION AGENTS,

PIG IRON

Blooms, Bar, Sheet & Hoop Iron. 217 N. Third St., St. Louis.

PATENT MINERAL WOOL The Best and Cheapest Non-Conductor or Insulator of Heat

or Cold. Used for covering steam pipes, boilers; for linivater pipes, hydrant and street washer boxerefrigerators, cold storage houses, &c. Chee enough for deafening walls of dwellings, factoric &c. State rights for sale. Send for circular

ALEXANDER D. ELBERS, No. 26% Broadway, N. Y., P. O. Box 4461

BORAX.

Concentrated Borax in sacks.
Selected concentrated Borax in barrels.
Refined Borax in cases.
Pulverized Borax in barrels.
Pulverized Borax in bound and half pound packages.
Being Sole Agents for Mesers. Smith Bros., OWNEES OF
ITE MINES, we are enabled to sell at the lowest prices.

WM. T. COLEMAN & CO.,
NEW YORK, 16 Pearl Street.
SAN FRANCISCO, CAL., cor California and Front Sts.

payable by foreigners are to be discharged. It appears from Prince Kung's despatch that the action of provincial officers in demanding such payments by a higher scale than the Kuping is a departure from the established rule of the government in regard to the re-ceipt and disbursement of the public

lishment of a mint and nothing less.

It may be possible, however, to correct some of the evils of the existing currency.

I think that we are fairly entitled to ask:

1 ist.—That the government shall declare
in what tael the customs and other dues

certain foreign coins, and many more besides.

cers will strive to uphold the existing system may be readily imagined.

-The standard tael having been de cided upon, its exact equivalent in grains troy and grams should be declared. Looking to the inferiority of native scales, there can be no certainty in passing bullion

until this has been done.

3d.—The purity of the silver of the standard tael should also be declared. There is no such thing in China or elsewhere for that matter as silver 1000 fine, and it is that matter as silver 1000 nne, and it is necessary to have a standard purity declared, not only in order to effect certainty in passing bullion, but also in determining the equivalent values of the foreign coins in

4th.—The values of local taels relatively to the standard tael should be restated and

declared.
5th.—The values of foreign coins should be restated and declared.

be restated and declared.

It is not necessary, as I think, to enter upon an extended argument to show that the steps mentioned above are of much importance, or to explain why silver only is spoken of. All that has preceded in this paper indicates that silver is the real standard of value in China, that much uncertainty writes in the new of that if offert is to be exists in its use, and that if effort is to be made to improve matters without a radical departure from the existing system the suggestions made are perhaps those which, if carried out, would offer the best results.

It is not necessary either to point out the treaty stipulations which would justify the effort to effect such an improvement of the currency. When foreign nations agreed with China for the payment of duties upon merchandise imported and exported by their people, it is not to be supposed that they imagined that the unit of the currency was an unknown quantity, or that they can be satisfied to have a situation continue which

does not give uniform results.

It is desirable, of course, to proceed toward the accomplishment of reforms in this country, or in any other, within existing lines of administration. Perhaps a leading merit of the suggestions advanced lies in the fact that it would not be necessary to bring any new instrument of administration into use. It would be quite possible for this government to direct its provincial officers to take steps, in concert with the foreign customs establishment, to bring about all the reforms indicated.

the reforms indicated.

There can be no doubt, moreover, that steps so taken would prove an advance toward the ultimate object. They would expose more clearly the faults of the existing system, and they would break down, in some measure, the interests which are upholding it. All considerations then—those of the immediate interests of commerce, and those which look to the ultimate complete reformation of the currency to the advantage of all, to that of the native indeed, far more than to the foreigner—indicate that it. more than to the foreigner—indicate that it will be wise to prosecute this business with all appropriate earnestness

GEORGE F. SEWARD. PEKING, February 20, 1878.

The Telephone on a Railroad.—The Toronto (Ont.) Monetary Times says: A practical and somewhat important use of the telephone is being made at Amherstberg station of the Canada Southern Railway The railroad company have a telephone wire under the Detroit River, from the upper slip on the Canada side to the Stony Island slip, for the greater convenience in com-municating orders for the movement of the ferry barges which are now used, towed by tugs, to transport laden cars, pending the repairs of their large steamer Transfer.

Flame Temperature.-M. Rosetti, of Venice, has recently carried out some experiments to determine the temperature of a Bunsen flame. He used a thermo-electric apparatus. His estimate of the temperature of a Bunsen burner is as follows:

For the week ending at midnight on Sat-For the week ending at midnight on Saturday, July 6th, 348 tons of iron were manufactured at the furnace of the Warwick Iron Company, at Pottstown. This number excels by three tons the largest yield of the Warwick Furnace in any previous of the Warwick Furnace is a single by the relatives of the persons killed.

anthracite stack, 16 x 55 feet. It was built

The Recent Boiler Explosion at Cambridge.

That great opposition to the establishment of a mint must be expected is manifest. Foreign bankers appear to prefer to have the currency in its present irregular and uncertain condition, doubtless because they make a profit from it. How much more native bankers and money changers and receivers of the revenue and disbursing offi-The report of the inquest into the facts onnected with the boiler explosion at the factory of the Boston Stamping Company, in Cambridge, on Saturday, April 6, 1878, has just been rendered and contains points of considerable interest to manufacturers and users of steam boilers.

may be readily imagined.

It is well known, however, that the Chinese central authorities and some of their leading provincial officers are alive to the evils of the present system, and disposed to introduce remedies, and it may be predicted with safety that a coinage system will be adopted within a near period. I do not say within five or ten years, or attempt to anticipate the date. It is coming to be a felt want and such wants create their remedy.

It is evident that no step short of the establishment of a mint can effect a radical improvement of the currency. Gold and silver must be coined in order to be convenient for use, and such coins must be authoritatively issued in order to be accepted without hesitation or doubt. The object to be kept in view then is the establishment of a mint and nothing less. and users of steam boilers.

The boiler was of 50 horse-power, 17 feet long, 4 feet in diameter, and of the class known as a horizontal return tubular boiler. It contained originally 49 3-inch tubes—two of which had been removed—and from the great extent of surface exposed to the heat this boiler had a large capacity for generating steam. It was made by Thomas Cunningham, and placed in the factory in November, 1869, under the builder's direction. It was reported to be made of the best quality charcoal No. 1 iron. It was tested by a pressure of 150 pounds to the square inch, and a certificate of a United States Inspecand a certificate of a United States Inspec-tor of steam boilers given that it was deemed safe for one year at a working pressure of 100 pounds to the square inch. At the time of the explosion it was inferred by one of the owners that not more than a tenth of the usual power of the boiler was at work, as the daily work had been suspended. Upon certain evidence it appears that at the moment preceding the disaster the strain upon the boiler did not materially exceed 60 pounds to the square inch, and that there was no deficiency of water. When the explosion occurred there was no warning or ntimation of danger. It was instant, ter-rific and destructive. The building in which the boiler was set was totally destroyed, and the fragments scattered about as if a mine of gunpowder had exploded on the spot. More minute particulars of the disaster, by which the unfortunate men were killed, follow. One of them, besides being employed as a blacksmith, had had charge of the boiler since January last. He had no such educa-tion and experience as would qualify him for the responsible trust.

The evidence taken at the inquest disclosed the following defects in the materials and

onstruction of the boiler

1. The examination of the iron of the shell by thorough tests disclosed that, instead of being of the best quality, as represented in the certificate of inspection, it was of a very inferior kind, utterly unfit for a steam boiler. It showed indications that these plates had been rolled from two qualities of ron, an inferior central plate veneered by covers of a better grade, so that, while its tensil: strength would sustain a strain that indicated safety, it was so brittle, as stated by Mr. J. H. Roberts, as to break under a

slight blow with a 7-pound hammer.

2. The boiler had faults of construction that made it insecure. The rivet holes were too large, leaving the transverse seams par-ticularly very weak. The stays of the back head were all attached to the back course, head were all attached to the back course, thereby throwing the pressure upon the rear transverse seam. The same pipe was used both for feed pipe and as a blow-off pipe; the boiler was so set and fed that the circulation was defective, and there was no place for the safe deposit of sediment and no manhole for its removal except at the front. There were no fivelless fets plays.

There was no fusible safety plug.

3. It also appeared that the setting of the boiler was so faulty that soon after its erection the whole of the bottom was exposed to the direct action of the fire, as also the dry

smoke box, which was frequently burned out.
The report says it was shown by the concurrent testimony of several experienced workmen who had examined and repaired this boiler, that from the action of the fire upon the front plates, from the frequent ac-cumulation of sediment in the back end, consisting principally of silicious fronds deposited by the water used from Fresh Lond, by which the bottom sheets and the lower tubes were exposed to injury from the heat, and from the want of competent supervision and care, it had become unsafe a long time previous to the disaster. From the time of its erection in 1869 it does not appear that this boiler had been submitted to an inspection beyond the incidental examination of the workmen employed to repair it. While the above enumerated defects as to the condition and care of the boiler were abundantly proved, yet the engineers and experts who had investigated the facts of the case were not uniform in their opinion as to the immediate cause of the explosion.

That part of the report which follows, as published by some of the Boston papers, is published by some of the Boston papers, is the veriest nonsense, possibly from some misunderstanding of the reporters. It seems evident, however, that the boiler had been standing a long time under pressure and making little or no steam. Upon the opening of a valve or cock the pressure was probably sufficiently lowered to release the enormous supply stored up in the water and so produce the destruction. The report con-

cludes as follows:

"Had the original inspection discovered the inferior quality of the iron, this boiler had probably never been accepted. Had it been submitted to competent inspection, it would undoubtedly have been condemned long ago. Had it been placed under the care of a competent engineer—and no one can be deened competent who is unacquainted with the chemistry and phenomena of steam—the conditions which directly brought about the disaster would not have

been allowed to occur. "We find there was grave delinquency in using iron in the construction of this boiler Bunsen name apparatus. His estimate of the ture of a Bunsen burner is as follows: Exterior flame, 1350°, diminishing to 1200° at the dark central cone; interior of cone, top, 650°; bottom 250°. These figures are of the Centigrade thermometer, equivalent respectively to 2462°, 2102°, 1202° and and used to the peril of all persons in its neighborhood, without the proper appliances and means for its security, and without any aurvey by a competent inspector long after applicances. survey by a competent inspector long after its unsafe condition had become apparent. "We find that the explosion which caused

Aron.

HOLLOW CHILLED ROLLS.

Suitable for Plate, Sheet, Nail Plate, Pipe Iron, Bridge Iron. Either Iron or Steel Rolling. Orders addressed

TOTTEN & CO., Fulton Foundry, Pittsburgh, Pa.,

Manufacturers of Rolls and Rolling Mill Machinery of every description, will receive

McNEALS & ARCHER.

BURLINGTON, N. J.

FOR WATER AND GAS.

Light Castings and Metal Patterns

A SPECIALTY.

TAYLOR & BOCCIS.

Iron Founders.

Nos. 65, 67, 69, 71 & 73 Central Way, CLEVELAND, O.

CORRESPONDENCE SOLICITED. Will make estimates on completed work when desired.

As convincing proof of their great superiority we refer to the following testing We take pleasure in saying that we have used your Hollow Chill Rolls for 12 months, and find them to be the best chill Rolls we have ever used in our mill. The necks keep very much cooler and save grease and steam, and we can expand the body of Roll very much better than we can the soild Roll. We will order another pair as soon as we start our mill.

BELLAIRE NAIL WORKS,
A. L. WETHERAL, Manager.

BELLAIRE, O., Dec. 20, 1877.

I think your Rolls are just what you claim for them. Then if fine and good, and the chill is even all over alike. They are the best for nail plate if ever worked. I can run a set of them three months without dressing, and make as good surface and good edges as you see on hoops, and they are ready to work fine iron at any time without change.

JAS. PATTERSON, NAIL PLATE ROLLER.

PITTSBURGE, April 9, 1876.

I have tried the Hollow Chill Rolls for sheet steel for twelve months, and believe them to be in every way superior to solid rolls. They keep their surface and produce handsome work. They do not heat in the necks. Your Solid Rolls on small mill for steel wire, &c., also give us great satisfaction, combining surface and strength. DAVID SHAW,

Manager for ANDERSON & PASSAVANT.

LA BELLE STEEL WORKS, April 10, 1876. We have been using the Hollow Chill Rolls for a year, and are more pleased with them than the solid; have no hot necks or "springing" rolls, with less number of dressings, and are now free from colwed checks or cracks on face we were so much troubled with in our solid rolls. SMITH, SUITON & CO.

CRESCENT STEEL WORKS, Pittsburgh, April 11, 1878. We have used several pairs of your Hollow Chill Rolls. One pair ran until we dressed all of the chill off; the others are still in use and doing well.

MILLER, METCALF & PARKIN.

CONSHOHOCKEN, PA., April 11, 1878.

In reply to your favor of oth, we have to say that the Holiow Rolls made by you, and on which we are mow making Sheet Iron, are giving good satisfaction. The work we are doing on these Rolls is of the very hardest kind, and tests rolls more severely than almost any other kind of work, making sheets Nos. 18 and 20, 5 to 9 feet long at one heat, from a bar 46 in. wide. They are good hard surface, and even chill, and are still perfect after 6 months use. We think these Rolls are superior to any we have now in use.

J. WOOD & BROS.,

Manufacturers Imitation Russia Sheet Iron, &c.

CATASAUQUA, Pa., April II, 1876.
The Hollow Chilled Plate Rolls received from you last summer have given us entire satisfaction, and if we were in need of Plate Rolls to-day we would order another pair just like the last, When we need pair you will hear from us. CATASAUQUA MFG. CO. OLIVEE WILLIAMS, General Manager.

efer to the following testimonials of practical mea:

PENNSTLYAMA IRON WORES,

PITTSURGH, April 11, 1876.

It affords us pleasure to testify to the merits of you Hollow Chill Rolls, after constant use of them in ou mills at Pittsburgh and Scottdale. The first one wa put in one year sgo, and we have taken particula notice of their behavior since that time. We say, as we have often said before, that we prefer them to any other rolls for their superior surface and genera durability. We think they retain their "shape" better than solid rolls and keep cooler in the necks We are at present using all Hollow Rolls, and when it need of more will, of course, order hollow ones.

EVERSON, MACRUM & CO.

RUSSIA SHEET MILL, Niles, O., April 13, 1878 We have used your Hollow Chill Rolls in both o sheet mills for the past 12 months, and can confident recommend them as strong, serviceable Rolls. GEO. SUMMERS, Supt

NEWPORT, KY., April 10, 1878.

After a thorough trial of your Hollow Chill Rolls on plates, sheets and wide fire bed, we have no hesitation in saying that they are the best Rolls we ever saw. They keep their surface, produce better finished iron, and do not get out of shape like solid Rolls. They have been thoroughly tested as to strength and are satisfactory in every respect. JOHN JORDON, Manager Swiff Iron and STEEL WORKS.

PHILADELPHIA. April, 19.
The pair of Hollow Chill Rolls purchased from you we have been running for some time, and they give entire satisfaction. HENRY DISSTON & SONS.

The Rolls are now in the turning shop, undergoing the second cressing, and we can, without hesitation, state that having used a great number of chilled rolls for sheet steel rolling, we have never employed at our works a pair of rolls better in every respect than the pair referred to. Our sheet steel rolling will be subject to at any other works. FARK, EROTHER & CO.

General Foundry Work

Southern Advertisements.

Southern States Coal, Iron & Land Co. GIRARD WRENCH. LIMITED,

ENGINEERS, IRON FOUNDERS & BOILER MAKERS,

Coal Miners and Fire Brick Manufacturers. The Only Makers in the Southern States of

WASHED FOUNDRY COKE,

Free from Slate and Sulphur. Machine-Made Brick, Limestone, Lumber and Shingles.

FARMS TO LET.

Apply to the HEAD OFFICE, South Pittsburg, Tennessee.

W. A. HOSKINS,

MINERAL LANDS,

Chattanooga, Tenn. Offers for sale, at very low figures, some of the most valuable Charcoal and Coke Properties within the district. Full particulars furnished on application.

Vulcan Iron & Nail Works.

Chattanooga, Tenn., MANUFACTURERS OF

BAR IRON, NAILS, RAILROAD SPIKES, FISH BARS AND BOLTS BRIDGE AND CAR BOLTS, AND FORGINGS GENERALLY.

ROANE IRON COMPANY.

Manufacturers of and Dealers in

Pig and Railroad Iron.

CHATTANOOGA, - - - -

CAR & FOUNDRY

Chattanooga, Tenn.,

RAILWAY FREIGHT CARS, Car Wheels and Castings.



TENN. COAL & RAILROAD COMPANY,

A. M. SHOOK, General Manager, - - Tracy City, Tenn.

Proprietors of the Sewanee mines, capacity of 50,000 bushels of coal and coke per day.

Several important institutions of learning, including the University of the South, also the celebrated ershels Springs, are located upon the line of this Railrost of very fine lands, offer special inducements to locate. Communications addressed to the General Manager will receive prompt attention.

T. J. BROWN, Rockwood, Tenn.

Miner and Contractor of Fossiliferous Ores.

A superior article delivered at low figures at any furnace within the district or at any point on the Ohio River. Refer to Roane Iron Co., Chattanooga Iron Co., or S. B. Lowe, Chattanooga.

S. Whinery, Civil Engineer,

CHATTANOOGA, TENN.

Late Division Engineer Cincinnati Southern Railway.

Will prepare plans and superintend construction of Bridges, Buildings, Roofs, Roods, Streets, Water Works, Sewers, Canals and other public works. Examinations, location and construction of railway lines a specialty. Surveys, examination and reports made or mineral lands. Business attended to thoroughly and promptly. First-class references given.

S. B. LOWE, Pig Iron, Storage & Commission.

CHATTANOOGA, TENN.

Dealer in Charcoal and Coke Pig Iron for Foundry, Forge or Car Wheel purposes. Chattanooga, Tenn.



No. 1 Platt St., New York,
Agent for CLEMENT & MAYNARD, Great nducements offered in their Superior Shovels, Spades and Scoops and Trowels, as well as Hoes. A large stock on hand.

CHAMPION BARROWS.



WITH WOOD OR IRON WHEELS.

A first-class article and a specialty, that will make a demand in any market and afford a good margin dealers. W. are prepared to furnish them in large quantities. Manufactured by BRYAN MANUFACTURING CO., Bryan, O.

SEMPLE & BIRGE MFG. CO., Sole Western Agents, ST. LOUIS, MO.

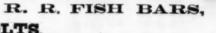
STANDARD NUT CO.,

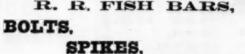
Pittsburgh, Pa.,

MANUFACTUREDS OF

HOT PRESSED Square & Hexagon Nuts,

R. R. FISH BARS.





RIVETS, &c.

STANDARD



GUABANTEED

EVERY RESPECT. Wrought Bar, Head

and Screw. Owing to the increased demand

for these justly Popular Wrenches, we are now manufacturing more than any other establishment in the world.

Our Wrench having been imitated by other manufactur ers, we have adopted the above Trade Mark, and will hereafter stamp all our

SEND FOR TERMS and PRICES.

GIRARD WRENCH MFG. CO., Girard, Pa.

0

H Hubbard, Bakewell & Co., A

PITTSBURGH,

PENN.

BEST BRANDS. A

AXES



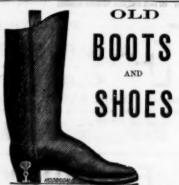
SHOOTS, VINTON & CO.,

Wooden Water Pipe,

And all kinds of Chain Pump Tubing (J. D. Shoots' Patent, July 3d, 1877.)

L D. SHOOTS, C E VINTON, HORSeheads, N. Y.

The above Patent for sale for all States except New York and Pennsylvania.



Can be Straightened AND NEW ONES KEPT STRAIGHT

LYON'S PATENT Metallic

N. LYON, Sole Manufacturer, ALBANY, N. Y.

Stove Repairs.

127.W. Rand W. C. METZNER, LLE.



LIGHTNING HAY KNIVES,

IRON PIPES



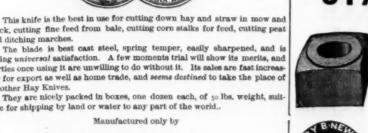
This knife is the best in use for cutting down hay and straw in mow and stack, cutting fine feed from bale, cutting corn stalks for feed, cutting peat and ditching marches.

The blade is best cast steel, spring temper, easily sharpened, and is giving universal satisfaction. A few moments trial will show its merits, and parties once using it are unwilling to do without it. Its sales are fast increas ing for export as well as home trade, and seems destined to take the place of all other Hay Knives.

> Manufactured only by Hiram Holt & Co.,

> > East Wilton, Franklin Co., Maine.

For sale y the Hardware Trade generally.



The Largest Pump Works in the World. Over SUO Different Styles.

PUMPS, STEAM PUMPS, ROTARY
PUMPS, CENTRIFUGAL PUMPS,
PISTON PUMPS,

Tanners, Paper Milla, Fire Purpos attuations imaginable es, suitable for all



Also, HAND FIRE ENGINES. RUMSEY & CO.,

Seneca Falls, N. Y., U. S. A.

Branch House, 93 Liberty Street, N. Y

Branch House, 93 Alberty Street, N. x
MARCUS C. HAWLEY & CO., San Francisco and
Sacramento, Cal., General Agents for the Pacific Coast.
JUSTUS SCHMIDT, Agent, Hamburg.
L. M. HUMSHY & CO.,
Branch House, S11 N. Main St., St. Leuis, Me.







Price Lists and Discounts will be sent only to LALANCE & GROSJEAN MF'G CO., 89 Reckman St., New York.

PERRY & CO.'S STEEL PENST

IVISON, BLAKEMAN, TAYLOR & CO., Sole Agents for the U. S 138 and 140 Grand St., New York. PERRY & CO., L'd, London. 119 & 114 William St., New York.

HOWSONS' OFFICES FOR PROCURING

UNITED STATES AND FOREIGN PATENTS.

Forrest Buildings, 119 SOUTH FOURTH ST., PHILADELPHIA 605 Seventh St. (Opposite U. S. Patent Office),
Washington, D. O.
H. HOWSON.
Solictor of Patents.
Communications should be addressed to the

1

nmunications should be addressed to the PRINCIPAL OFFICES. PHILADELPHIA.



PATENTS. THOMAS D. STETSON, 23 Murray St., N Y., Patent Solicitor, and Expert. W. & B. DOUGLAS, MIDDLETOWN, CONN.

The Oldest and Most Extensive Manufacturers of PUMPS. HYDRAULIC R

GARDEN ENGINES

Vard Hydrants, Street Washers.

Hydraulic Machines

WORLD. Awarded the GRAND MEDAL of PRO-GRESS at WORLDS' EXPOSITION, VIEN-NA, 1873, being the highest awards on Pumps, &c., also, highest medal at PARIS n 1867, and Philadelphia, 1876, accom-

Descriptive Catalogues and Price Lists sent when requested.

BRANCH WAREHOUSES,

panied by Report of Judges.

85 & 87 John Street, N. V.

197 Lake St., CHICAGO, III.

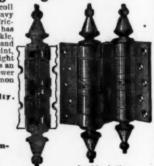
MANUFACTURING COMPANY. UNION



This Hinge has two flat coll springs, very powerful It has a heavy solid pintal, giving much less friction than a hollow pintal. It has broad, solid bearings in the knuckle, which do not wear down readily and let the door sac. It is Fast Joint, therefore can be used for either right or left hand. By actual test it has an average of 50 per cent, more power than other Spring Hinges in common use of same size.

Fine Castings a Specialty. NEW BRITAIN, CONN.

Warehouses, 98 Chambers St., N. Y. 67 Kilby St., Boston. (Pur Heaton & Denckin, 507 Com-merce Mt., Phila. (Buts.) Send for Illustrated Catalogue Price List.



THE IMPROVED

In Competition with the World at Philadelphia, 1876.

TWO FIRST MEDALS, and TWO DIPLOMAS OF MERIT The following are the points that the Judges officially announce as the basis of their award of the hest honors to the Howe Scales:

nignest honors to the Howe Scales:

1st. For their Protected Bearings (the Howe is the only Scale with Protected Bearings), which makes the Scale DURABLY ACCURATE.

2d. For their Strength.
3d. For their Strength.
4th. For their Economy in Construction.
5th. For their first-rate Material and Workmanship.
6th. For their rateous original Improvements and Adaptations (which being patented are excusively possessed by the HOWE).

The Improved Howe Scales

BRANDON MFG. COMPANY, of Rutland, Vt.,

Are Guaranteed Superior to all others. For Plans, Prices and other information, address,

A. M. CILBERT & CO., 95 to 101 Lake St., Chicago; 116 Main St., Cincinnati; 157 Water St., Cleveland, O.; 612 N. Third St., St. Louis.

325 Broadway, New York. 213 Market St., Philadelphia. 145 Franklin St., Boston. 63 Wood St., Pittsburgh. San Francisco, Cal. 44 44 PARKHURST & CO., - FROTHINGHAM & WORKMAN, -Montreal, Canada.

YALE LOCK MFG. CO.,

Stamford, Conn., U. S. A.

53 Chambers Street, New York, ISALESROOM,

A Consular Report from Denmark.

Mr. Henry B. Ryder, our consul at Copenhagen writes to the State Departmet follows:

Agricultural laborers here are paid 1 38-100 Agricultural laborers here are paid 1 38-100 crowns *per day; but as the rule farm hands are employed at from 8 to 10 crowns per month, including board and lodging. Mechanics earn on an average from 2 to 3 crowns per day. Laborers on public works,

crowns per day. Laborers on public works, such as railways, &c., earn from 500 to 600 crowns per annum, without board.

I may here add that there is a large surplus of labor at the time of this writing, May 15, 1878, and no employment for it.

COST OF LIVING.

The cost of living to the laboring class in this city is on an average, for a grown person, at from 1 to 2 crowns per day; for a family of two adults and three children, from 2½ to 3 crowns per day. For the country and provincial cities the cost of living to the laboring class is less, say about 1 crown per day for an adult, and from 1 1/4 to 1½ crowns per day for a family of two adults and two children.

Wages are, on an average, from 10 to 15 per cent lower than in 1872. I may here state that during the past years, including 1873 to 1876—of which no official reports pertaining to this matter can be obtained—wages were considerably advanced, say from 35 to 45 per cent., on an average, on all classes; but in 1877 a general reduction commenced, which has brought down the cost of production and labor to nearly the same figures as in 1872. The cost of living is about the same now as in 1872, if not a

STATE OF TRADE.

The present state of trade in this country s very much depressed in every line of pusiness. On looking for the cause of this general depression I find that there have general depression I find that there have been several aggravations which have helped to bring about the present state of affairs, namely, a seriously unfavorable harvest in 1876, 1877 and 1878, overspeculation and extreme uncertainty of all European politics. Commercial distress may be explained in the following manner: The production and over-speculation in a large class of important speculation in a large class of important commodities requiring extensive capital and many workmen is so much in excess of the real demand as to reduce the prices and leave no profit to the merchant or producer. In no profit to the merchant or producer. In other words, the less wealthy are compelled to retire from the field, ruined, and the wealth of the country is lessened by the aggregate of the capital they have lost, and by the cost of maintaining in some way or other the many workmen thrown out of employment. In this small country the cash demand for commidties has fallen off to a considerable extent because from some considerable extent, because from some cause the means of the consumers have considerably diminished, and in consequence of a larger amount of capital being applied to production or speculation than the actual

wants of the country would justify.

The means of consumers have been lessened here since 1874 from the following causes: 1. From great losses to investors in stocks and private enterprises, &c., which in annual income amounts to many millions.
2. From losses incurred in trade.
3. From losses incurred by the maintenance of many

workmen unable to procure employment.

It is very certain that the means of consumers, whether in this or in other countries (that is to say, the cash demand for commodities), can only be augmented by commodities), can only be augmented by great frugality, harder work and more invention, unusual productiveness of the soil and the accumulation of savings over a considerable period of years. It is not a matter of confidence or credit, but a want of capital. Trade has been depressed here since 1874 because there has been year by year little or no surplus of earnings over expenses, and trade will continue to be depressed until that surplus becomes considerpressed until that surplus becomes consider-

LABOR IN DENMARK.

Another evil more radical in its nature is the diminished value of labor—that is to say, the descending quantity and quality of work obtained by employers for wages not merely the same, but higher than they were ten or twelve years ago. This is a cause of dearness of production and of retarded accumulation of the most formidable character, to a great extent neutralizing the gain to the community from the increase of skill and community from the increase of skill and the progress of mechanical inventions. Its effect on an entire country—if there are no sufficient compensations in the progress of inventions or in other directions—is essentially as disastrous as would be a ment of machinery they are quite if not more effective; for, while both intelligent and cotton factory hand will attend to two machines where the Englishman, hampered by the inventions or in other directions—is essentially as disastrous as would be a material reduction of the hours of daylight. After a the severest and most hopeless sufferers by such a limitation of efficiency and progress are the working classes themselves. There can be no advancing welfare among the class of working people depending on weekly wages apart from the rapid accumulation of capital.

On the 30th of April last about 64,000, ooo of paper money (crowns) were in circulation. On the other hand, the amount of gold coin and bars at the National Bank of this city, for the security and redemption of said paper currency, was 35,500,000 of crowns. The national bank of Copenof crowns. The national bank of Copen-hagen is the only bank in this kingdom allowed to issue paper money, none being issued by the government or by any other bank in Denmark. The notes of the Na-tional Bank are redeemable in gold coin, which is the legal tender; silver being used as fractional currency, and only considered legal tender to the amount of 20 crowns. According to treaty stipulations between the Denver Denmark and Sweden-Norway, the coins of the three countries are circulated in each of the line. of them as legal tender.

It is impossible to give an exact statement

Regarding the business habits and sys-

The Danish crown is worth 27 cents,

country, as far as I have been able to form an opinion I should say that most of the Danish merchants are honorable and re-spectable. Not only is this opinion enter-Danish merchants are honorable and respectable. Not only is this opinion entertained of them at home, but it is shown to exist abroad in the widespread credit which is accorded them in all countries in Europe, namely, England, France, Germany, Russia, Holland, Belgium, Sweden and Norway. The general character of the merchants is that of strict probity in their transactions: but they are somewhat slow n transactions; but they are somewhat slow in their movements, and difficult to be got to step out of their old steady way of carrying on their business transactions. More especially do the wholesale merchants—as also a considerable class of the retailers—appear to be held in the highest estimation, and it is but very rarely that such confidence seems to have been misplaced, as in the whole manner of transacting business their chief desire seems to be the maintenance of the credit and high standing of their firms by a strict fulfillment of their engagements.

CREDITS.

Although a considerable part of the trans-Although a considerable part of the transactions are for cash payments—that is to say, from 3 to 30 days—the usual terms are 90 days, with or without bill acceptance, and in many instances, more especially among the small retail dealers in the provincial towns, by an extension of credit six months. The style of the trade carried on with England chieffyin proving expedience. with England, chiefly in manufactured goods is on credit against remittance at the expiration of three months from date of ship ments. The principal exports are chiefly made against direct orders for shipment consignments on merchant account being seldom made. With live cattle, of which some 50,000 head are annually exported, I believe it is different, and that a large proportion of these shipments are made on speculation. The preceding remarks have reference only to the honorable and respect-able class of dealers, for naturally here, as well as in other countries, will be found some few who, looking less to their good name, will sacrifice the same for the sake of procuring some temporary profit. Notwith-standing the increased facility of credit created by many years of considerable over-speculation in every branch of business and obtained by incompetent and insolvent tra-ders and merchants—has tended to increase the number of bankruptcies, still these, when compared with what has taken place in other countries, are small in extent, and it is chiefly among this class of traders that the general and widespread stagnation seems mostly to exist.

The St. Gothard Railway Company finds ome difficulty in obtaining the money neces-ary to complete its great work. According sary to complete its great work. According to the original understanding under which the work was begun, Italy was to have contributed \$9,000,000; Switzerland, \$4,000,000; the North German Confederation, \$2,000,ooo; the Grand Duchy of Baden, \$600,000; and the other German States the additional cost. Now Switzerland is asked to contricost. Now Switzerland is asked to contribute as a nation, instead of by states, \$1,300,000, on condition that the Northern and Central Railway Company gives \$300,000 more, which, it is estimated, will complete the road. Whether these subsidies are in addition to those originally agreed upon does not appear in the dispatch. The road will connect Luzerne and Milan by rail, and the division of cost between the nations is supposed to represent the proportion of benefits to be derived by each from its construcefits to be derived by each from its construc-tion. It now requires 15 hours to cross the Alps by the St. Gothard pass in the diligence from Fluelan to Bellinzons

The British Consul at Havre writes: France is singularly free from the exigencies of trade unions and the pernicious effects of strikes. The great mass of French workingmen, outside of a small class of cafè politicians in Paris, keep, no matter what their political opinions may be, their atten-tion fixed on the one main chance—that of earning money. Their amusements are more simple, their habits and mode of living less costly, and they are more saving than the British workmen. Nor are their powers of labor much inferior. In anything requir-ing muscular effort they cannot compete with the Englishman; but in the managerules of his union, will refuse to look after more than one.

The Cincinnati Gazette describes a plan in

The Cincinnati Gazette describes a plan in use in that city for consuming the smoke of furnaces of steam boilers. There are, it says, two fires, one under each end of the boiler, fed from the side. When one fire is fairly burning the second fire is kindled, and by shifting the draught the smoke from the new fire is carried over the live coals in the furnaces first started, and is consumed. The fires thereafter are replenished alternately. fires thereafter are replenished alternately, and thus the consumption of smoke is continued. The device is in operation on a large scale in the steam furnace of a heavy large scale in the steam furnace of a heavy engine attached to one of the inclined plane railways that lift Cincinnati people to the tops of the surrounding hills. The result, as vouched for by the proprietor of the con-cern, is that the consumption of smoke is complete, and the saving of fuel about 40 per cent. per cent.

Garland is a town on wheels. Whenever the Denver and Rio Grande Railroad finishes a section of road the town moves to the end of the line. The people of Garland are de-termined to live at the terminus of the narrow guage, no matter where it takes them. As the It is impossible to give an exact statement of the amount of the gold coin in circulation in the kingdom of Denmark, but, including the amount held by the National Bank of this city, it may be said to be 30,000,000 crowns. The circulation of silver amounts to about 16,000,000 crowns, and the amount of copper in circulation to 500,000 crowns, BUSINESS METHODS.

BUSINESS METHODS. is a healthy place; it was located about one year ago, and there have been but seven deaths.



USE THE BEST

NEW





AMERICAN FILE COMPANY.

THE NEW AMERICAN FILE COMPANY have the exclusive right to use the Bernot process for cutting Files. By this method all the advantages of hand cutting are secured, together with an accuracy unattainable in hand work. They are the only manufacturers who employ machinery for testing Files and Steel.

NEW AMERICAN FILE CO., Pawtucket, R. I.

AUBURN FILE WORKS, Superior Hand-Cut

MADE FROM IMPORTED STEEL FULLER BROS., Sole Agents,

89 Chambers and 71 Reade Streets, N. Y

McCAFFREY & BRO..

Pennsylvania File Works,

urth St., north of Columbia Ave., Philadelphia, Pa., U. S.





Domestic and foreign buyers who are desirous of handling a superior File or Rasp should send us their orders. Gentlemen visiting the Exhibition Universelle in Paris are invited to examine our exhibit at D $_3$.

Steam and Frost prevented on Show Windows.



REVOLVING VENTILATORS

Kitchens, Laundries, &c., ventilated without draft. Durable, strong, without rivets or solder. Oiled for six months. Each one has storm cap. Retail price, size six inch diameter, \$1.00 and upwards; apparatus with which any one can cut circles in glass, 15 cents each.





BRACHER VENTILATOR CO., No. 3 Park Row, New York,

Bolt and Rivet Clippers,

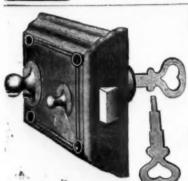
For cutting off the ends of bolts and rivets, on carriages, wagons, harness, &c.

SEND FOR A CIRCULAR AND PRICE LIST. Liberal discount to the trade.



Chambers, Bro. & Co.,

PHILADELPHIA.



Extension Cylinder Night Latches.

KING'S PATENT, June 26, 1877.

Cylinders adjustable for doors from 11/4 inch

to 2 inches.

FRANCIS MANY,

143 Chambers St., New York. | Also all kinds of Press or Die W. satisfactorily, promptly and well.

RASPS. HAND-CUT. Manufactured by

JOHNSON & BRO. No. 1 Commercial Street, Newark, N. J.

Chas. Spruce & Co.,

Manufacturers of HAND CUT FILES AND RASPS

Every File warranted. CHALMERS & MURRAY, 76 Reade St., New York

SPENCER & UNDERHILL

94 Chambers St., N. Y., Agents for American Screw Co.'s Wood, Machine and Rail Screws, Stove and Tire Bolts, Rivets, &c. O. Ames & Sons, Shovels, Spades and Scoops A. Field & Son, Tacks, Brads, Nails, &c. G. F. Warner & Co., Carriage Clamps. We have also on hand a general assortment of Hardwo



THE GIANTIPAD LOCK.

THE SMITH & EGGE MFG. CO.

4 Superior in Every Respect."

its is one of the best selling Locks in the market, affords the dealer a large profit. It is thoroughly strongly made—of the best material—very hande in appearance, and every Lock is warranted, ders solicited. Address as above Lock Box 105, Bridgeport, Conn.

"DRAW CUT" BUTCHERS MACHINES Choppers, Hand and Power. Stuffers, Lard Presses. Warranted thoroughly made as the Bret in Uax. MURRAY IRON WORK Burlington, Iowa

THE VICTOR PLANES



No. 10%, Circular Plane, Price, \$4.50 each, above cut represents L. Balley's Patent Plane ed for Circular work, either concave or convex is on a straight line or in any degree of circle to thirteen inches in diameter. Both ends are simultaneously with one hand and instantig at any desired degree of circle without resortation many plane in the changes. If desired the connecting plate is the changes.

chanical use.

Amateurs will find their wants fully met in our list of Tools. On receipt of list price we will send to any address in the United States, by mail, postage paid any tool found in our list excepting Nos. 5, 6, 7 and 8 which being ioo heavy will be expressed on same conditions. Always order by list number. Send for flustrated Price List. Address

LEONARD BAILEY & CO., Hartford, Conn.

GO tO BRASS GOODS MFG. CO.

280 Pearl St., New York, for Indestructible Busine

fold Back Mirror Useful beside being

Black Diamond File Works.



Awarded by Jurors of Centennial Exposition, 1876, for "VERY SUPERIOR GOODS."

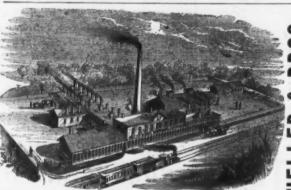
G. & H. BARNETT, 39, 41 & 43 Richmond St., Philadelphia.

CHARLES B. PAUL,

Manufacturer of HAND CUT FILES.

187 Tenth Street, Williamsburgh, New York,

Retablished 1863.



ESTABLISHED 1848.

DRAPER Z

HAMMERED MO FINISHED



The Ausable Nails

Are Hammered Hot,

And the Finishing and Pointing are Done Cold,

Thus Imitating the Process of Making Nails by Hand.

Quality is Fully Guaranteed.

For Sale by all Leading Iron and Hardware Houses.

ABRAHAM BUSSING, Secretary,

4 Warren Street, New York.

FOR SALE.

Patents of Root's Wrought Iron Spiral Pipe.

The Abendroth & Root Manufacturing Company, sole owners of the Letters Patent, and manufacturers under the same, of Root's Spiral Metallic Tubing, grooved and riveted seam, now offer for sale the territory west of the Rocky Mountains, in the United States, and the Letters Patent issued for Canada and all other foreign countries, together or separately, including complete working drawings or machinery (if required) for manufacturing.

The success of this company in the introduction of Spiral Tubing throughout the States and Territories east of the Rocky Mountains, is a sufficient guarantee that the business cannot be otherwise than successful wherever entered into.

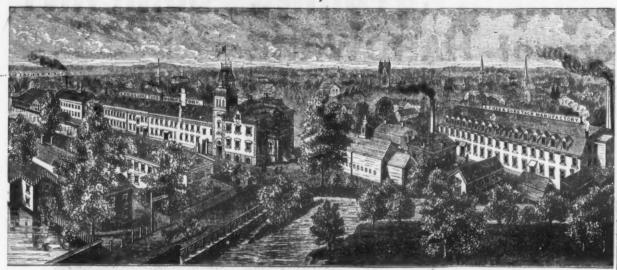
For illustrated catalogue and full particulars address ABENDROTH & ROOT MFG. CO.,

28 Cliff Street, New York.

162

A. FIELD & SONS,

TAUNTON, MASS.



Shoe Nails, Fine Two Penny and Three Penny Nails, Channel, Cigar Box and Chair Nails, Leathered Carpet Tacks, Glaziers' Points, Etc.

Section Showing Edge.

ANSONIA

Bronzed Fire Screen

With Ornamented Mouldings. PATENT APPLIED FOR.

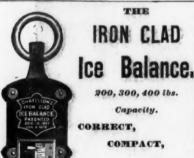
OPPICES AND FACTORIES AT TAUNTON, MASS. WAREHOUSE AT 78 CHAMBERS STREET, N. Y., where may be found a full assortment of Tacks, Brada, &c., for the accommodation of the New York Wholesale and Jobbing Trade.

Any variations from the regular size or shape of the above-named goods made from samples to order.



Machinery

Chicago



DURABLE.

NOT LIABLE TO GET OUT

Universally Approved

Ice Companies.

Manufactured only by

John Chatillon & Sons, 89, 91 & 93 Cliff St., NEW YORK.

Geo. M. Eddy & Co., 351 & 353 Ciasson Ave., Brooklyn, N. Y.

MEASURING TAPES.

Of Cotton Linen and Steel.

Measuring Tapes, Pat. Spring Measuring Tapes FINE TEMPERED STEEL SPRINGS.
FINE TEMPERED STEEL BAND SAWS,
From & Inch wise upward. Warranted tougher than
any other Hand S. w. Catalogues on application

PRIZE MEDALLISTS:

London, 1862; Oporto, 1865; Dublin, 1865; Paris, 1967; Moscow, 1872; Vienna, 1873, and only Award and Medal for Self-Colling Steel Shutters at Centennial Exhibition, Philadelphia, 1876.

CLARK & CO.,

ORIGINAL INVENTORS AND SOLE

Noiseless Self-Coiling Revolving

STEEL SHUTTERS,

FIRE AND BURGLAR PROOF.

Rolling Wood Shutters

of various kinds. Clark's Shatters are the **Hest** and **Cheapest** in the world. Are fitted to new Tribune Building, Lenox Library, Delaware and Hudson Canal Co.'s Building, Transatiantic Steamship Co.'s new Dock, American News Office, &c., Posey County Court House, Mt. Vernon, Holt County Court, Oregon, Mo. Also to buildings is Boston, Cincinnati, Detroit, Janesville, Wis, Baltimore, Canada, &c. Have been for years in daily use in every principal city throughout Europe, and are indersed by the Leading Architects of the World.

Office and Manufactory,

162 & 164 West 27th Street, N. Y.

ANSONIA CORRUGATED STOVE PLATFORM

Ansonia Brass & Copper Co. Office, 19 & 91 Cuff Street, NEW YORK.

The Ansonia Corrugated Stove Platform, the its heavy figured ogce border, is believed be the best Platform offered to the trade, be the best Platform offered to the trade, shown in the illustrated section herewith it quires no nsiling to keep it in place or to revent it from turning up at the edge; while metal is of sufficient thickness to require blining.

ning.
8 low price, superior quality and fine
h of this Platform will be readily acknowlged. Packed 24 in a case. send for price list.



UNION CHAIN WORKS, REITER & MORTON,

Pittsburgh, Pa.,

Coil, Cable, Crane, Railroad, Wagon and Agricultural Chains, From Best Standard Brands of Iron.

Our Chains are all thoroughly tested and warranted, and will be found equal to the best of either home or foreign make.

Prices the very Lowest.

Paine's Patent U. S. Standard Steel PHILIP S. BIGLIN Successor to W. F. SHATTUCK & CO.,

Manufacturers' Agent for

AMERICAN HARDWARE.

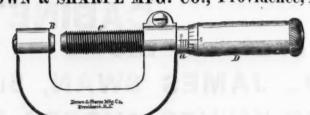
Shaftuck's Union and Counter Scales. Pholan's Axes, Hatchers, Picks, &c. Wellman's Gimler's, Gimler Hits, &c. Griswoid's Augers, Auger Hits, &c. Helroyd & Co.'s Stocks and Dies. Yaw's "Genuine" Wrought Cow Bells. Barton's Hand and Sleigh Bells.

100 Chambers St., New York. Maithy's Britannia and Cocon Dippors.
Eddy's Reflacd Lamp Black.
"Eagle" Ave. Pick and other Handles.
"Eureka" Filmt, Nand and Emery Papers.
Cortland Forged Horse Nails,
Tackle Blocks, Spokes, &c., &c.

REDUCTION IN PRICES OF

Micrometer Calipers and Pocket Sheet Metal Gauges

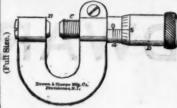
BROWN & SHARPE MFG. CO., Providence, R. I.



MICROMETER CALIPER for Machinists' Use.

Price, \$5.00.

For all sizes less than one inch diameter, this Caliper will be found a reliable and convenient substitute for the Vernier Caliper, and will prove invaluable to tool makers, and to machinists engaged on small and fine work. Its accuracy and convenience for the purposes for which it is designed will be appreciated at once by those whose work requires such a tool.



POCKET SHEET METAL GAUGE.

Price, \$5.00. In Moroceo Case, \$5.50. This Gauge will measure the thickness of sheet metal

or other material by thousandths of an inch up to threetenths of an inch at any point within half an inch from the edge, and can be applied as easily as the common wire. Means of adjustment are provided in case of wear by continued use,

peake Nail Works.

Office of the Hartford Stram Boiler
Inspection and Insurance Company,
Hartford, Conn., July 8, 1878.

To the Editor of the Iron Age.—Having
seen mention of the explosion of the boilers
at the Chesapeake Nail Works, near Harrisburg, in The Iron Age, it occurred to me. burg, in The Iron Age, it occurred to me that a brief communication from one who had made careful examination of the exploded boilers might be not only interesting to your readers, but of service to others owning boilers similarly set and used for like numbers. Diagram No. will give an idea owning boilers similarly set and used for like purposes. Diagram No. I will give an idea of the relative position of the boilers which exploded. They were plain cylinder boilers, 36 inches in diameter and 30 feet long, made of &-inch iron. They were supported upon iron columns and suspended over puddling furnaces in the usual manner. The heaters and middlers performed their duty below. furnaces in the usual manner. The heaters and puddlers performed their duty below, and puddlers performed their duty below, while the water feeder occupied a platform above. The flues of the boilers marked Nos. I and 2 had been repaired, the brickwork being out of order, and had been out of use for several days. On the morning of the 25th of June (about 3.35 o'clock) the boilers marked Nos. I, 2, 7 and 8 exploded with terrific force, completely demolishing the wing of the rolling mill in which the boilers were located and doing other and serious damage, as will be explained further on. The explosion occurred in the interim of a change of "turns." The night hands had all retired, and only a few of the morning all retired, and only a few of the morning "set" had arrived. Had the explosion oc-

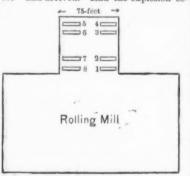


Diagram No. 1.

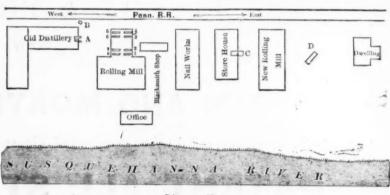
curred fifteen minutes later the loss of life would have been appalling. As it was, the water feeder, who was on his platform at-tending to his duty, as is believed, was in-stantly killed, and several others were seristantly killed, and several others were seriously and two fatally injured. Diagram No. 2 shows the relative position of the buildings and the direction of the flight of the boilers. A great many theories have been advanced as to the cause of the explosion, as is usually the case. From a careful examination of the fragments of the boilers, no indications of special weakness could be found. The iron was thinned slightly on the bottom of the boilers, but not sufficient to cause any apprehension on account of the pressure apprehension on account of the pressure used. The boilers were not overworked and were not strained. They were exam-

The Boller Explosion at the Chesa- distillery, a stone building with walls 2 feet distillery, a stone building with walls 2 feet or more thick. They tore a large hole in the wall and were left projecting out as in-dicated at A, diagram No. 2. Boiler No. 1 passed along by the blacksmith shop, taking off part of its cornice, it then passed through the roof of the nail mill, and declining some-what crashed into the store-house, through several piles of kegs of nails and out through an 18-inch brick wall, resting as shown at C. Boiler No. 2 sailed not less than 60 or 75 feet into the air, passed over the nail works and store-house, crashed through the ventilator of the new mill, fell into a vacant lot, rebounded and landed near a private dwelling. Its position when found is shown at D. It is not often that such destructive explosions occur. But they go to show that the best managed establishments are liable to destructive accidents sometimes

Too much importance cannot be placed upon the matter of opening the steam ways between boilers which are under different pressures. Serious accidents not unfrequently occur from carelessness in this mattre. The openings should be made very gradually, the steam being almost or quite "wire drawn" until equilibrium is established. The man who had charge of feed and steam connections had been in the employ of the company for many years, and is said to have been a sober, careful and faithful man. After careful examination I became satisfied that no blame could be attached to the proprietors. These boilers were insured by this company. They were inspected about six months before the expectation of the company plosion, and our inspector was in the neigh-borhood at the time of the explosion, with a view to making arrangements for another inspection. I should have said that boilers 3, 4, 5 and 6 remained undisturbed, with their stacks perpendicular and in good condition. This is a strange fact, when we consider that the portion of the mill in which dition. This they were located was entirely demolished.
J. M. ALLEN, President.

Puddling by a New Process.

An Ohio paper says: An interesting experiment is being tried at Brown, Bonnell & Co.'s rolling mill in Youngstovn. It is a patent process for puddling, and is the invention of the Rev. Dr. Chapin, a Presbyteran divine, who for several months filled the pulpit of the First Presbyterian Church in that place. A reporter who investigated the matter found in the new mill, suspended a dozen feet from the ground, a vast iron tank or vat, resembling, more than anything else in the world, a peanut roaster, except that it was mammoth in size. To the left of it was a great wheel, while a few feet in the rear was a sheet-iron tank at least 12 feet in hight. This was an air reservoir, and the air was being pumped into the reservoir. in hight. This was an air reservoir, and the air was being pumped into the reservoir by a sort of an engine and pump, which was puffing away, making a terrible noise. A long pipe went from the reservoir to the big vat where the puddling was to be done. This pipe conveys the air into the vat, and in this way the blast was obtained. The reporter asked Mr. Richard Brown what the odd-looking vat suspended there meant. and were not strained. They were examined externally and internally twice each year, and no persons were more ready to have every defect, even the slightest, looked after and repaired at once, than Charles L. Bailey & Co. The portion of boiler marked C, near the store-house, had somewhat the appearance of burned iron from an external examination. The color of the iron indicated that the water had been portion and we like distance of the ready to the water had been indicated that the water had been porter asked Mr. Richard Brown what the meant water had looking vat suspended there meant. "Oh," said Mr. Brown, pleasantly, "that is something which, if it succeeds, will do away with the hot dollar, and strikes, and sliding scales, and all other such patents. It is an invention of Dr. Chapin, who is quite a chemist. He thought it might work, showed it to our firm, and we liked it so well we were willing to spend a little money to try it."



degree of strength, and the fracture, while degree of strength, and the fracture, while being a little brittle and dull, did not indi-cate so great a deterioration as one would infer from a surface examination. I have said above that the brick setting of the boilers I and 2 had just been overhauled. During this time they were of course cold and out of use. On the morning of the 25th of June the puddling furnaces were started up, and steam was being raised on the up, and steam was being raised on the boilers. It was the custom when boilers were blown down for repairs to move the weight on the safety-valve lever in, and when the boilers were again put under steam to move the weight out to the point of maximum pressure. I should have said that all these eight boilers were connected with one main steam pipe. Just what the water feeder did while on the platform will never be known, but I am of the opinion that he opened the connections of boilers Nos. I and 2 before the steam in them had ar-The greater pressure of steam outside would cause a violent rush toward the point of least pressure, and a disturbance might be occasioned which would be sufficient to rend a boiler in pieces. Now, if in addition to this the water feeder had ne-glected to fill the boilers with water when the furnaces were started, and was engaged in that business at the time of the explosion, no other cause need be sought. What gives some probability to this theory is that a wrench which he was accustomed to use for

low, if not entirely out. Tests made by | The reporter then asked to be enlightened perated.

"Well," said Mr. Brown, "it is yet in a very crude state, but the idea is to put the molten iron into a vat, and, of course, with molten iron into a vat, and, of course, with the blast blowing upon it it will decarbonize, and after a while it will be taken out, put into a furnace, boiled and balled ready for the squeezers. The big wheel on the left is to turn the vat over, so that the iron may be poured out when ready to boil. What you see in the vat now is einder that has been put in this afternoon and is burning. It is to glaze over the surface of the vat. The experiment of puddling will be made hereafter."

The reporter asked Mr. Brown what would be the result if the new invention was

"The result would be," he said, "that in a few months there would not be a puddling furnace in the United States. It will revolutionize the puddling of iron, and this method will be used."

will be used."

Dr. Chapin, who was standing near, felt sanguine of success, saying that the experiment might prove a failure at first, but it could be ascribed to the air pump, which probably lacked the requisite power.

Japanese Telegraphs.—The Japanese government is evidently losing no time in extending its system of telegraphic communication, for there are now 125 telegraph stations in the country, and it is estimated that there are 5000 miles of wire in operation; 1000 miles more are in course of construction, and still further extensions are contemplated. Considering that the first Gauge will measure the thickness of sheet metal such purposes was found near his body after the explosion.

Boiler No. 1 appears to have exploded first, and started off its companion No. 2. It will also answer to measure the diameter of Means of adjustment are provided in case of wear timed use,

werench which he was accustomed to use for that there are 5000 miles of wire in operation; 1000 miles more are in course of construction, and still further extensions are true that there are 5000 miles of wire in operation; 1000 miles more are in course of construction, and still further extensions are the explosion.

Boiler No. 1 appears to have exploded first, and started off its companion No. 2. The breaking of steam connections caused such a sudden release of pressure that Nos. 7 and 8 were sent flying off toward the old

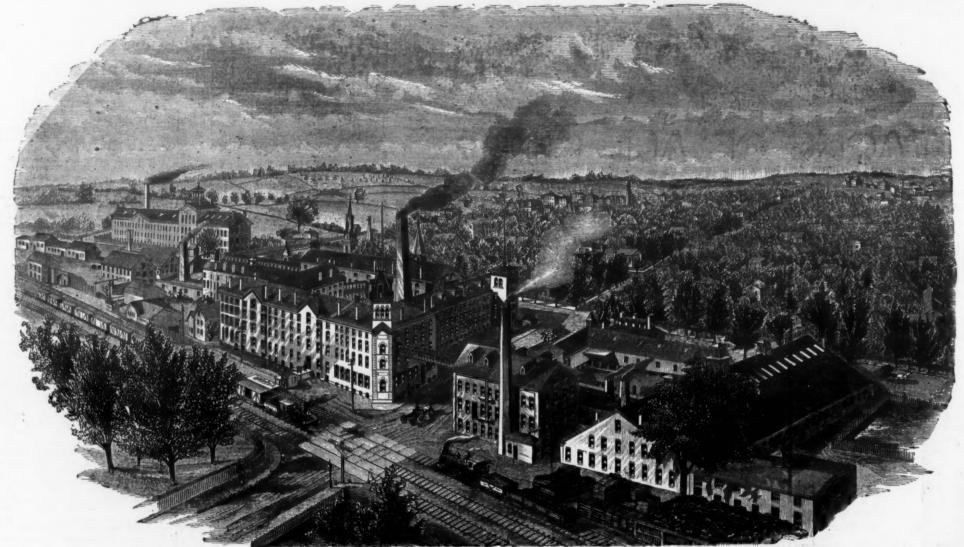
RUSSELL & ERWIN MANUFACTURING COMPANY

Manufacturers of HARDWARE.

FACTORIES. - - - NEW BRITAIN, CONNECTICUT, U. S. A.

MANUFACTURERS' AGENTS AND DEALERS IN GENERAL HARDWARE AT OUR

WAREHOUSES: NEW YORK, 45 & 47 Chambers Street; PHILADELPHIA. 425 Market Street; BALTIMORE, MD., WM. H. COLE. Agent, 17 South Charles Street.



Screw Factory.

fices, Packing Room and Main Factory. Finish

Finishing Shop.

Iron Foundry.

CABINET LOCKS.

WORKS OF

THE RUSSELL & ERWIN MANUFACTURING COMPANY,

NEW BRITAIN, CONNECTICUT, U. S. A.

RIM AND MORTISE DOOR LOCKS, KNOBS, &c.

Particular attention is called to our new lines of Rim and Mortise Locks, with our

PATENT ALL STEEL NICKEL-PLATED KEYS.
WOOD SCREWS, - - - Complete Assortment.

POLISHED FIRE IRONS, Iron and Brass Head Shovels and Tongs. HALE'S MEAT CUTTERS, Bake Pans, &c., &c.

PADLOCKS.

Sole Agents for the

DOUGLASS MFG. CO., JAMES SWAN, Successor,
Best Cast Steel CHISELS, DRAWING KNIVES, AUGERS, BITS, Cook's Patent
AUGERS, BITS, &c., &c.

We also offer a full line of

GENERAL HARDWARE

at lowest market rates.

Cutlery.



"ELECTRIC RAZORS," And the "ELECTRIC SHEARS." Nickel Plated

Agents for the BENGALL RAZORS. AMERICAN TABLE CUTLERY, BUTCHER KNIVES, &c. 91 Chambers and 73 Reade Sts., N. Y. 423 N. Fifth St., ST. LOUIS, MO.

The Oldest Manufacturers of Table Outlery in America.

THE "PATENT IVORY" HANDLE TABLE KNIFE,

NAUGATUCK CUTLERY Manufacturers of FINE PEN & POCKET CUTLERY.

STANLEY RULE AND LEVEL CO.,

Improved Carpenters' Tools.



FACTORIES. New Britain, Conn. WAREROOMS.

29 Chambers St.,

Cutlery.

Van Wart & McCoy.

Importers & Commission Merchants.

Hardware, Cutlery, Sad-

(dlery, Metals, &c.

134 and 136 Duane St., New York.

Cutlery.

JOSEPH S. FISHER, No. 411 Commerce St., PHILADELPHIA

George Wostenholm & Son. "Limited."
Washington Works, SHEFFIELD,

Cefedrated I-XL Cutiery, Razors,&c

WALTER SPENCER & CO., Steel and File Manufacturers. Rotherham, ENGLAND.

Corporate Mark

NOSPENCER ROTHERHAM

Granted 1777.

HERMANN BOKER &

101 & 103 Duane Street, New York,



GARDNER PATENT

All of Gardner's Patent Knives are fully warranted.



TOOLS THORPE. AGSTOZ de

ELTON

Electro Plated Ware, German Silver and Britannia Spoons.



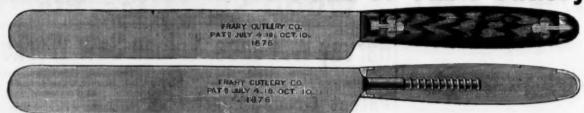
Factories, Wallingford, Conn.

Salesroom, 75 Chambers Street, New York.

FRARY CUTLERY COMPANY, FACTORY, BRIDGEPORT, CONN.

VAREHOUSE, with WIEBUSCH & HILGER HARDWARE CO., 84 Chambers St.

of all kinds of Table Cutlery.



The above Illustrations represent their New Patent Screw Tang Lock Fast Solid Handle Entfe.

There is no question but that a solid handle Knire's much more preferable than a scale tang. The great objection to their use hitherto is, that no solid wood handle has been placed on the market with the handle properly secured—no handle put on with cement will stand the wear and tear of every day usage. The cement will expand and contract with the action of heat and cold, and become loose, crack and come off, causting great prejudice against their use. This objection is overrome in our patent screw tang. A wood screw is welded to the tang of the Knife or Forz, and screwed farmly and securely in the handle and looked there by the bolster, making a very strong neat and bandsome salfe, which we warrant over to get loose, crack or come off. We manufacture a large variety of patterns, both Table, Butthers and Carvers, and and very respectfully invite the attention of the trade.

CLOTHES WRINGER!



T. J. ALEXANDER, Manager, BOSTON, MASS.

Bemis & Call Hardware & Tool Co.

PATENT COMBINATION WRENCH.

For Circulars and Price List, address

CORPOR Joseph Rodgers & Sons

CELEBRATED CUTLERY. io. 82 Chambers Street, New York F. & W. CLATWORTHY, Agents.

The demand for Joseph Rodgers & Sons roductions having considerably increased, they have, in order to meet it, greatly extended their Manufacturing Premises and Steam power.

To distinguish Articles of Joseph Rodgers L'ons' Manufacture, please to see that they bear : c)r Corporate Mark.

ESTABLISHED 1852.

NEW YORK KNIFE CO.

Table & Pocket Cutlery, WARRANTED TO BE MADE OF THE BEST

MATERIAL.

WALKILL RIVER WORKS,

Walden, Orange Co., New York THOS. J. BRADLEY, President.

ALFRED H. HILDICK,

12 Warren St., N. V., Importer of
Birmingham Heavy Hardscare, Chains,
Anvils, Vises, &c.
Agency of HILL BROS. & CO., WALSALL, ENGLAND
GENERAL HARDWARE MERCHANTS,
And of

Ball's Pat. Solid Steel Sheep Shears.



American Sheet Iron and Tin Plates.

The United States Iron and Tin Plate

The United States Iron and Tin Plate Company of Pittsburgh, Pa., have issued the following under date of July 1, 1878:

Gentlemen: Herewith we have the pleasure to inform you that we have concluded an agreement with Messrs. Ely & Williams of Philadelphia and New York, by which they have become our sales agents for the Eastern States.

Having succeeded by constant attention

Having succeeded by constant attention and care in making superior grades of sheet iron, we venture to say our products compare favorably in quality, as well as in price, with any other, foreign or home made. We with any other, foreign or nome made. We shall continue to devote our special attention to the details of manufacturing, and having established at least one new industry in which foreigners have held a monopoly for a long time, we desire to form a closer connection with consumers, and believe you will agree with we that the medium ve hear agree with us that the medium we have chosen in the selection of our agents is a proper one. The services which Messrs. Ely & Williams have rendered by introducing home-made articles of other branches in the iron and steel industry are well known and appreciated by the trade; and it is known as well that they do not undertake to offer their customers any articles the quality of which they cannot guarantee to be as repre-

The products of our works are the U.S. A. M. and J. H. Stamping iron, show card iron, Taggers iron, shovel iron, stove-pipe iron, and the U.S. terne plates, all furnished to order in sizes to suit the wants of

the consumer.

For the convenience of our customers we For the convenience of our customers we have divided our stamping iron into the following standard grades: U. S. A. M., No. 1, 1½, 2, 2½ and 3; and J. H., No. 1. The latter is a very fine product of the Bessemer furnace and is suitable for many purposes. By letting us know the purpose for which the iron is wanted we can in most cases tell which of our grades will answer best or we which of our grades will answer best, or we will even make special grades to suit the

Our No. I stamping iron has stood as severe tests as were ever brought to iron, and all our other grades have in almost every instance given full satisfaction to the

Our show card iron has gained quite a reputation on account of its fine, smooth sur-face, and the greatest portion of iron show cards are now made from our iron.

The manufacture of taggers iron has so far been only a minor item in our business but having succeeded in producing a really excellent article, we shall in future pay full

attention to this branch of the iron industry.
Shovel manufacturers will find it greatly to their advantage to correspond with us or our agents, as we are satisfied we can suit them in all grades of iron plates, as well as

Bessemer steel plates. Bessemer steel plates.

We furnish stove-pipe iron in joint length for pipes of any width from 5 to 8 inches diameter; and we would call particular at tention to our bright stove-pipe iron which has of late come into use, and which serves those who wish to have nice, bright stove pipes without paying the high price of Russia iron.

iron.

We are arranged to finish all our iron in the following different styles, viz.: Pickled and cold rolled, pickled, cleaned, cold rolled or with common surface. And we furnish to order the following sizes of all our grades: No. 6 to 12, Birmingham gauge, from 10 x 14 to 24 x 72; and of our different charcoal grades, No. 28 to 34 gauge, from 10 x 14 to 20 x 40; and No. 35 to 40 gauge, from 10 x 14 to 14 x 20. The Birmingham wire gauge being as yet the standard with iron manufacturers, our price list is based on it; but we would request you to give, whenever it is possible, request you to give, whenever it is possible, either the weight per square foot or the thickness of the plates in thousands of an

In regard to the manufacture of terne

plates, we have to state that although we have established a first-class reputation for have established a first-class reputation for the United States plates, we have been com-pelled to give up the manufacture of them as a staple article for the present, because the prices of the imported plates have fallen so low that we cannot get the cost price for ours. One reason for this fact is the comparatively very low import duty; for although the manufacture of tin and terne plates is one of the most important but diffi-cult branches of the iron industry, the duty on the foreign article is only about one-half of that on any other article of which the main substance is iron. The attention of our present Congress has been repeatedly now we shall have to wait until our lators see fit to assist the development of an industry which, if protected the same as other products of iron and steel, would in a short time provide a livelihood for many thousands of American citizens, and by which \$16,000,000 would be kept circulating at home instead of going annually to foreign countries. However, we shall be very glad to receive orders for terne plates in regular or odd sizes whenever consumers deem it to their interest to pay our price.

Our agents are prepared to give you full information in regard to qualities and prices of our goods, and we hope you will favor us with a liberal patronage. Yours respectfully, U.S. IRON AND TIN PLATE CO.

It so happens that the two great bridges in progress, one across the East River and the other across the Hudson at Poughkeepsie, are seriously embarrassed by the lack of funds. On the latter very little is doing, and in regard to the first Commissioner Prentice remarked yesterday to the representative of The Iron Age that unless New York city provided her proportion of the funds, to stop would be the only alternative. As yet work in the engineers' department gives employment to the full number of haads.

TACKLE BLOCKS.

Rope and Iron Strap of all kinds.

Rope and Iron Strap of all kinds.

Is and Price List, address

BEMIS & CALL HARDWARE & TOOL CO., Springible miass.

Tackle Blocks.

Rope and Iron Strap of all kinds.

Numvitæ Wood for Ten-Pin Balls.

Wm. H. McMillan & Bro.,

Office, 113 South Street, New York.

Factory, 39 to 40 Penn St., Brocklyn, E. D.

President Foster, of the Metropolitan Elevated Railway, says they are laying foundations on Ninth avenue between Fifty-ninth and Eighty-first streets fointly with the New York Elevated Railway Company, and excavations are in progress from Sixth to Ninth avenues in Fifty-third street to form the connecting link. The work is pushed as fast as possible.

S. H. & E. Y. MOORE, 68 Lake Street, CHICAGO, ILL.,

Heavy Hardware & Railway Supplies.

Providence Tool Co., Reading Bolt & Nut Works, Syracuse Bolt Co., And Other Manufacturers.



CLIMAX BARN DOOR HANGERS. MOORE'S

Anti-Friction Sliding Door Sheaves,

"Folant" Barn Door Catches,

The "Climax" is recognized as the Leading Hanger in the market. It is altogether superior to any other Barn Door Hanger ever made. In the "Climax" is a complete wheel provided with Anti-Friction Bearings. It is practical, hence its widespread popularity. It is the only Anti-Friction Hanger having a Wheel.

The trade are cautioned against imitations, made to sell, and whi are without any mechanical principles to recommend them. Moore's Anti-Friction Hay Fork Pulley.

The main wheel contains four anti-friction wheels which revolve upon axles fast in its sides. The main wheel revolves nine time while the anti-friction wheels are revolving once.

Depot for goods of our manufacture:

FERNALD & SISE, 100 Chambers Street, New York. E. & C. GURNEY & CO., Hamilton, Canada.

WILSON.

Successors to J. CLARK WILSON & CO., NEW YORK. No. 81 Beekman Street,

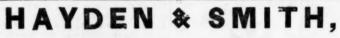
SOLE AGENTS FOR SNELL MFG. CO., Augers, Bits & Boring Machines. T DAVIS LEVEL & TOOL CO.,

Plumbs, Levels, Inclinometers, &c. WILSON MFG. CO., Vises and Coffee Mills, &c.

CLARK & CO., Blind Hinges, Cast Butts and Axle Pulleys. TAYLOR MFG. CO., Door Bells & Weeds Gates, &c. OAK HILL MFG. CO., Hangers, G. S. Fixtures, &c. FISHER & NORRIS, Eagle Anvils and Chain Vises. W. HUNT & CO., Razor Straps.

NEWCOMB BROS., Blacksmiths' Bellows. We have a Stock of

Moore's Climax Barn Door, Hangers, No. 2, which we offer at 65 per cent. discount.



Auburn, N. Y.,



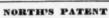
Carriage and Saddlery Hardware,

Owners of

LAMB'S PATENT

Seat Fasteners

The Safest and only reliable Seat Fastener for Wagons.





Universal Lathe Dog.

It is very strong. Holds very strong. Will not regular work. Always stands up square with the work and will not "skew." Is more evenly bal-anced than the common dog. Send for circular.

SELDEN G. NORTH, No. 347 North 4th Street, Philadelphia, Pa.

Wrought Iron Butts, Hinges

DOOR BOLTS,

Plain, Japanned, Bronzed and Plated.

We have recently purchased CROOKE & CO.'S entire stock of WROUGHT BRIGHT BUTTS, orders for which are solicited.

FACTORIES:

New Britain, Connecticut.

79 Chambers St., New York.

WAREHOUSE:

DOG MUZZLES.

The Patent Automatic, with Spring Jaw. common wire Muzzles, New Pattern, in nine different sizes. Also full and varied line of Metal

DOG COLLARS. Stair Rods in Brass, Fire Gilt and Nickel-Plated.

Tacks, Escutcheon Pins, Hair Wire, Picture Wire, &c.

W. T. & J. MERSEREAU, 321 Broadway, N. Y.



R. COOK & SONS

Carriage & Wagon AXLES WINSTED, CONN.

ESTABLISHED 1839.

EUREKA PLATFORM SPRING WAGON GEAR.



Patented in the United States and Canada.

The attention of Manufacturers and of the Carriage Hardware Trade is respectfully invited to the Eureka Platform Spring Wagon Trestle.

This Gearing is far ahead of all others in strength and light appearance. It is the strongest and most perfect gear in use, and is meeting with a large sale. Manufacturers of Platform Wagons will use no other after a trial of this.

\$7.00 for Trestle warranted to carry 1000 lbs. 8 50 " 2000 " 2000 " Terms cash. Liberal discount to the trade.
For circulars and full information address

ROME TRESTLE COMPANY, Limited, ROME, N. Y.







Patent Portable Hoisting Machines

EDWIN HARRINGTON & SON. also Manufacturers of Machin ists' Tools.

ANVIL & VISE COMBINED

15th St. and Pennsylvania Ave. PHILADELPHIA.



No. 1, 10-6x4 in. face, 4 in. jaw Vise, weight 40 ll No. 2, 8x3\d in. face, 3\d in. 25 No. 3, 6x3\d in. 25 Fig. 10. 4 The face of the Anvil is chill hardened. Turr belivered on cars at Worcester.

RICHARDSON MFG. CO., Worcester, Mass. Liberal discount to the trade.



JAS. CLAYTON PUMPS Air Compressors. 11&16 Water St.

HOTCHKISS' Novelty Combs.





We ask the attention of the public to our Patent Novelty Curry Combs, represented above, which are universally acknowledged to be far superior to anything in the market, being neat and durable and the most convenient to handle of any comb yet produced. They are put up in paper boxes of one dozen each, and packed \$4\$ dozen in a case. GIVE THEM A TRIAL. For Sale by the jobbing Hardware, Saddlery and Woodenware trade.

HOTCHKISS' SONS, Bridgeport, Conn.

NORWAY IRON

FANCY HEAD BOLTS.

Carriage & Tire Bolts. Star Axle Clips, &c. TOWNSEND, WILSON & HUBBARD, 2301 Cherry St., Philadelphia, Pa.

FORT PLAIN SPRING AND AXLE WORKS.



VETS

FOR SPRING TRADE.

All dealers in SPRINGS AND AXLES will find it to their interest to send to us for WOOD, SMITH & CO., Fort Plain, N. Y.

Wheeler, Madden & Clemson

MFG. CO., MIDDLETOWN, - - - NEW YORK.

Manufacturers of WARRANTED CAST STEEL

Of every description, including Circular, Shingle, Cross-Cut, Mill, Hand, WOOD SAWS, Etc., Etc.

Harvey W. Peace, Vulcan Saw Works.

RADE MARK Patent Ground ELENET W.PERCE SCOT Union Avenue, Tenth and Ainslie Streets, BROOKLYN, E. D., N. Y.

Mulay, Gang, Hand. and Butcher. Molding and Planing Knives. Plastering Trowels, Mitering Rods, &c.

AMERICAN SAW

Movable Toothed Circular Saws, And SOLID SAWS of all kinds.

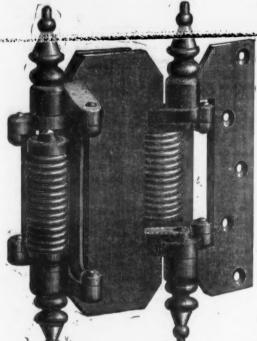
OLD COLONY RIVET WORKS.

Rivets, Hand Iron Cutters, Punches, Shears, and Planing and Shaping Machines Universal Ratchet Drills, and Patent Tinners' Snips.

New York Warehouse, 116 Chambers Street.

Spring Butts for Screen Doors,

ON A NEW PRINCIPLE, THE MOST DESIRABLE.



POINTS OF SUPERIORITY They exert their greatest

rce at the closing point. They will not allow the door They will retain the door

against the wall when opened ack of a right angle.

Send for circulars and prices,

MANUFACTURED SOLELY BY THE

Cowles Hardware Company.

Unionville, Conn., U.S. A. We can also furnish all sizes of larger utts, working on same principle

AGENTS: COULTER, FLAGLER & CO., 87 Chambers St., New York. SAM'L G. B. COOK & CO.,

Baltimore, Maryland

PITTSBURGH, PA.,

MANUFACTURERS OF

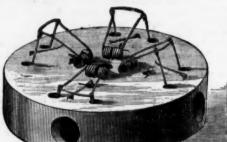
Heavy and Wagon Hardware, **BOLTS AND NUTS**

OF ALL KINDS,



Screw Hook and Strap and T Hinges, Etc. Etc.

Send for lithographs and price lists.



"Common Sense"

For Home and Export Trade BEST IN MARKET.

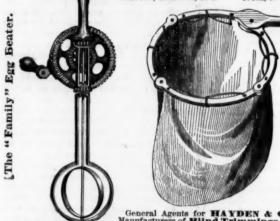
RIPLEY MFG. CO

Unionville, Ct., U. S. A.,

House Furnishing Hardware.

Fancy Brass Goods and Small Iron Castings TO ORDER.





EUREKA Fruit Picker. The Best Article of th

Kind ever Invented. deneral Agents for HAYDEN & CO., Middletown, Conn. autacturers of Blind Trimmings. Van Sand's Servev Fastening, No. 2000. Van Sand's, old style, No. 3705.



Both Floats Revolve.

THE PEERLESS PORTABLE ENGINE **DOMESTIC Semi-Portable Steam** Engine,

From 2 to 4 Horse-Power The only Engines in the Market, at ached to the Boiler, having

COLD BEARINGS. All parts interchangeable. Hardened connecting pins. Placed upon strong springs to produce easy carriage. Nothing cheap but the price. Send for Illustrated Catalogue and Price List to

F. F. & A. B. LANDIS, Cherry St., Lancaster, Pa.

Waterford, N.

PATENT **EXPANSIVE BITS** Made of JESSOP'S BEST CAST STEEL, and warranted superior wo sizes: Large Size Boring, % to 3 inches; Small Size Boring, % to 1% inches WILLIAM A. CLARK. Westville, Conn.

STEPHENS & CO | 1

Manufacturers of U.S. Standard BOXWOOD and IVORY RULES.

Also Exclusive Manufacturers of L. C. STEPHENS' PATENT COMBINATION RULE. Rules graduated in foreign measure to order.

RIVERTON, CONN.

H. DURRIE & CO., New York Agents, who will supply the trade at factory prices.

The only GENUINE D. R. BARTON Tools

ROCHESTER, N. Y.

Cor. Mill and Furnace Streets, AGENCIES:

HEATON & DENCKLA, 507 Commerce Street, Philadelphia, Pa. 33 Oliver Street, Boston, Mass. 4 Gold Street, New York.



THE ÆTNA SPRING AND AXLE CO.

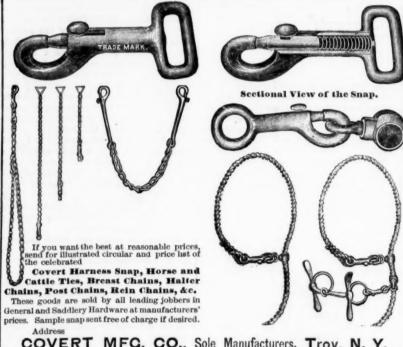
THE VERY BEST SPRINGS AND AXLES.

Our Standard Springs, weighing about half as much as the Springs of other makers, to do the same work cost but little more per vehicle than a common Spring. Our Jamb-screw, Coilinge Coilar, Parallel Arm, Malleable Iron Box Axles are the best in the world. Exclusive makers of

LEWIS'S TORSION AND CHOSS SPRINGS.

Supercedes the Brewster Cross and End, dispenses with side spars, weigh less, hangbody equally low, ride casier and cost less. Shop newly stocked with new and tumproved Machinery. Send for Price Lists W. H. WILSON Prest, and Treat

O. P. LEWIS (formerly of Spring Perch Co.), Sec., and Supt.



COVERT MFG. CO., Sole Manufacturers, Troy, N. Y.

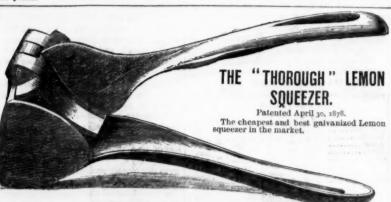
E. & J. C. COVERT, Sole Manufacturers, Factory and Salesroom, FARMER VILLAGE, N. Y.



NECK YOKE LEATHERS.

Our sales for the first half of 1878 have exceeded any one whole year heretofore. What better recommend can we produce to show that we are manufacturing a Superior Article.

Satisfaction always guaranteed. Sample Leather sent by mail on receipt of 60 cents. For full particulars send for circular and catalogue. For sale by jobbers in carriage goods at manufacturers prices.



Manufactured and for sale by W. & J. TIEBOUT, Manufacturers of BRASS GALVANIZED & SHIP CHANDLERY HARDWARE, - 290 Pearl St., New York.

THE "OLD RELIABLE" UNIVERSAL Clothes Wringer.



Improved with Rowell's Double Cog-Wheels on oth ends of each roll.

Over 500,000 sold! And now in use, giving "Universal" satisfaction. MANUFACTURERS' PRICES.

2½, Usual Family size, Rolls rows ¼.

EVERY WRINGER WARRANTED. Be sure and inquire for the "Universal." Sold by dealers everywhere

Metropolitan Washing Machine Co. 32 Cortlandt St., New York.

RIEHLE BROS.



Richle Bros.' Machines for testing Band Iron, Wire, and all other materials, by tensile, transverse, and rushing strains, from 100 lbs, to 60 tons capacity. New Machine for testing lubricants. Scales for Railroads, Elevators and Wharves. Scales for Furnaces, Rolling Mils, Mines, &c. Testing Machines adopted by U. S. Government. Specimens of materials tested daily at the Works, Trucks for Depots, Warehouses, etc. 75 Highest Centennial Award. Office & Works, 9th St., above Master, Philadelphia, Warerooms, 90 & 52 S., 4th St., Philadelphia. New York Office, 91 Liberty St.

The "Monroe" Patent Combined GLOSSING AND FLUTING IRON.

With Brass or Nickel Flutes. Prices furnished upon



BURGER & BAUMCARD, Sole Agents,

The Iron Age.

New York, Thursday, July 18, 1878.

DAVID WILLIAMS . . . Publisher and Proprietor JAMES C. EAYLES - . . Editor. JOHN S. KING - . . . Business Manage

RATES OF SUBSCRIPTION,

INCLUDING POSTAGE.

Remittances may be made at our risk by post office money order, fraft on a New York or Philadelphia bank, or in a registered letter.

TO OTHER COUNTRIES.

	Weekly	Semi- Monthly	Monthly
Mexico	\$5 00	\$2,50	\$1.25
West Indies (all the Antilles)	5.00	2,50	1.25
South America (except Ven-			
ezuela)	5.00	2,50	1.25
Venezuela	5.00	2.50	1.25
Central America	5.00	3.50	1.25
Europe	5.00	2.50	1.25
Australasiu	5.00	2.50	1.25
Asin-India and East Indies	5.00	2.50	1.25
Japan	5.00	2,50	3.25
China	5.00	2.50	1.25
Other Countries	5.00	2.50	1.25

EUROPEAN AGENCY.

We have established an office at B 3, American Section, Exposition Universelle, Paris, where Advertisements and Subscrip-tions are received and other business connected with our publications transacted.

ADVERTISING.

One square (12 lines, one inch), one insertion, \$2.50 one month, \$9.50; three months, \$15.00; six months \$25.00 one year, \$40.00; payable in advance.

DAVID WILLIAMS, Publisher, 83 Rende Street, New York. PITTSBURGH OFFICE.

77 FOURTH AVENUE.
JOS. D. WEEKS, Manager and Associate Editor.

PHILADELPHIA OFFICE.

230 SOUTH FOURTH STREET. THOS, HOBSON, Manager.

CINCINNATI OFFICE. MERCHANTS' EXCHANGE T. T. MOORE, Manager.

SOUTHERN OFFICE. EIGHTH AND MARKET STS., CHATTANOOGA, TENN. S. B. LOWE, Manager.

BRITISH AGENCY.

The publishers of *The Ironmonger*, 44a Cannon street, ondon, England, will receive orders for subscriptions ad advertisements on our regular terms.

AUSTRALIAN AGENCY.

perican Hardware Company, Melbourne, arts for Australia. Sample copies will be mailed free of charge, to any firm engaged in the represent in Australia, Tasmania and New

CONTENTS.

First Page .- Chanvin and Marin-Darbel' Testing Machines. Benjamin Haywood. Luck in Mining. Illinois Coal. Silveroid.

Third Page .- The Currency of China. Fifth Page.—The Currency of China. (Concluded). The Telephone on a Railroad. Flame Temperature. The Recent Boiler Explosion at

Seventh Page .- A Consular Report from Den

Ninth Page .- The Boiler Explosion at the Chesapeake Nail Works. Puddling by a New

Process. Japanese Telegraphs. Eleventh Page .- American Sheet Iron and

Fourteenth Page .- Condition of the Blast Furnaces of the United States July 1, 1878. Lead. Lime for Purifying Iron. Explosions of Carbon Dust. Boiler Explosions from Sudden Relief of

nre. Opening of the Sutro Tunnel Fifteenth Page .- Failures for the First Half of 1878. Condition of the Blast Furnaces of the

United States July 1, 1878. Eighteenth Page.-Coke Manufacture in

Nineteenth Page.—The Paris Exposition

Twentieth Page.-The Paris Exposition. (Con-

Twenty-first Page.-Trade Report, General

Hardware. Iron. Metals. Twenty-second Page.-Metals. (Concluded).

Old Metals, Paper Stock, etc. Exports. Imports. Coal. Philadelphia. Pittsburgh. Twenty-third Page.-Chattanooga. Cincin-

nati. Boston, St. Louis, Baltimore, Louisville, Richmond Foreign. Our English Letter. ourth Page .- Our English Letter

(Concluded). ndustrial Items. French Views of American Compatition with Great Britain. Nailmakers' Strike i England. Twenty-sevent's Page. - The Iron Age Direc-

Thirtieth Page -New York Wholesale Prices Thirty-first Page. - New York Wholesale Prices. (Concluded)

Thirty-secenth Page.—Philadelphia, Buffalo. Chicago and Pittsburgh Hardware and Metal Thirty-ninth Page .- Boston and St. Louis

Haid ware and Metal Prices.

The British steamer Othello, c: Wilson's line to Hull, which sailed this week, had on board 166 packs es. comprising 140 tons of locomotive machinery from the Bala win Locomotive Works. ... mac: nery is in the nature of duplicate parts to complete angines previous: o lered for three Russian rail-ways, viz. Oral, Woronesca nd Chaseon lines. T sampany are already at work on ten engine rdered for the New York Ele-Vated k....way Company, as mentioned in hese columns last week.

United States, July 1, 1878.

We print in another column our regular quarterly report of the condition of the blast furnaces of the United States. The statistical data there given as to the number of furnaces in and out of blast, and their estimated capacity, have been obtained through the kindness of numerous correspondents in all parts of the country. The full local knowledge of gentlemen who closely observe the fortunes of the iron industries of a small section, insures accuracy, so that with more than five years' experience in collecting and compiling these data, we are in a position to present them to our readers with the assurance that they are approximately correct In order to avoid any misunderstanding and to point out exactly the scope of the table, the following explanations are given:

1. The divisions of localities are geographical for the most part, and are not made with reference to the points from which furnace supplies are drawn. 2. The columns "in blast" and "out of blast" only show the stacks from which we have reports, and their footings will not equal the footings of the column of total number. 3. We have included some furnaces that are rebuilding and not yet completed and others that are building, and in one or two cases some furnaces that have been reported abandoned, since their owners do not report them. In other cases we have stricken from our list furnaces that are generally included in such lists, as we are assured that they are perma nently out. 4. The column of capacity per week is much in excess of what the regular working of the furnace will show-stoppages, slow working and various other causes which will readily occur to those interested, combining to reduce the make below the furnace capacity.

The condition of the furnaces at the date of our report is shown in a consolidated form in the following table :

	In Blast, July 1st.	Out of Blast July 1st.
Charcoal	64	202
Anthracite Bituminous	95	130
Bituminous	89	138
m-4-1	-	-
Total	245	460
mis about a senti-	1	41 - 4-4-5

This shows a partial increase in the total number over the report of a year ago. At

that time	th	0	8	U	ı	e	n	n (e.	n	ιţ	V	vas	as	follow	8:
										J	n	100	Bla		Out of	f Blas
Charcoal													87			181
Anthracite													87			139
Anthracite Bituminous	3										٠		85			123
												(perm	-			-
Total		0 0											259			443
0			4			_			,					-		

Comparing these dates by percentages which is the best test by reason of the changes in number from the building of new furnaces and the striking of others from the list as abandoned, and we have the following

PERCENTAGE OF	FURNACES	IN ANI	OUT	OF	BLAST
JU	TLY 1, 1877	AND 187	8.		
	-In Bl	ast—	-Out	of l	Blast-
	1877.	1878.	1877.		1878.
Charcoal		24	68		76
Anthracite	38	43	62		58
Bituminous	41	40	50		60

Lead.

The almost uninterrupted decline in lead, both in Europe and this country, has been so extraordinary that the causes which brought it about merit a close investigation, the more so as they will be found to afford a basis for determining the future of the metal.

Since the pacification of the Spanish Peninsula the English and Spanish mine owners there have set to work energetically to develop the resources of their property after the many disappointments they experienced while the Carlist and "Intransigente rebellions lasted. Spain has thus been able to produce above an average yield during the past two years, and the English as well as the Marseilles markets have, until quite recently, been well stocked from that source. During the past two months the production has declined somewhat, in consequence of Pennsylvania. American Stoves at the Paris Ex- the ruinously low prices obtained. In England the product has been stoe the continuous decline. In Germany as early as January it became apparent that the production would be unusually large this year, and as nothing has since happened that would lead us to infer the contrary, it is fair to presume there has been no abatement in production in that quarter. All we know is that a couple of months ago German producers were pressing sales "to arrive" in England and France. Since then the aspect has changed in Europe, the demand being on the increase once more, and, coinciding with diminished receipts from Spain, prices have taken an upward turn. Larger purchases for Russian account have assisted the improving tendency, and the favorable result of the Congress at Berlin has created a general impression that lead, in common with other metals, is about to experience the benefits of a revival in all branches of business

The course of lead prices in the New York market during the past eighteen months is

shown in the following table: PRICE, IN CURRENCY, OF COMMON DO

search and occurren	marior and to		OMEDIA	DOWN DAY!	7 84	BAD IN
N	EW YOR	K F	ER 100	LBS.		
anuary Sebruary	86.15	to	\$6.30 6.40 6.75	\$4.25 3.871/2 3.623/4		\$4.00
Aprilday	6.40 6.00 5.60	66	5.55 5.70	3.80 3.621/3 3.20	46 46 46	3.80 3.62½ 3.25 3.12½
luly	5.37% 5.00 4.75	6.5	5-25 4-90 4-62 14	* * * *		
November	4.25 4.50 4.50	66	4-37% 5.00 4-37%	****		****

A sale seems to have been made in June dling. As it is now well known that differ- toleration, and have learned that about the the ore extracted after the main tunnel is

Condition of the Blast Furnaces of the last as low as three cents, currency, per ping back, temporarily at least, to June prices; but at this point the export demand to valuable results. Woods step a sand street that European

prices are sustained at ruling rates. The production of lead from argentiferous ore in Utah, Colorado and other localities in the extreme West has of late years assumed extensive proportions, much beyond the calculation of the metal trade. The mine owners mainly look to the silver, and readily sell the lead at what it will bring at the great distributing centers. Meanwhile the cost of production there, as well as in Missouri, has been considerably reduced in many ways, and prices such as ruled during the first four months of last year could not have been sustained in any event. A decline was therefore inevitable, but nobody expected that we should drop to the export figure so soon. Shipments have since been made both to China and Europe, and the Europeans were not a little alarmed when they perceived the arrival of American lead. Henceforward Europe will be important to us, not as a source of lead supply, but as a market for an occasional, or perhaps permanent, surplus. Much will of course depend on the general course of business. Peace in Europe is even more favorable to lead than When business prospers over there, and cities great and small undertake local improvements, a great stimulus is given to lead consumption. The same will be the case here when the building trade revives, and white lead will also command a larger

The prospect of a general revival being promising both in Europe and here, we believe we are not too sanguine in predicting an increased consumption of lead in both hemispheres in the near future, large enough perhaps to make headway against the apparently irrepressible large output. Prices as high as those obtained 14 months ago may not be reached again in a generation; but, on the other hand, they are not likely to fall to three cents currency now that we have felt our way into the export trade.

Lime for Purifying Iron.

In the discussion following the reading of paper "On the Separation of Phosphorus from Pig Iron," by Mr. I. Lowthian Bell, at the March meeting of the British Iron and Steel Institute, Prof. Williamson suggested the replacement, by lime or some other cheap base, of a part of the oxide of iron used in Bell's process for eliminating phosphorus from pig iron. This suggestion was declared by Mr. G. Snelus to be of the great est importance. He had taken out a patent for eliminating phosphorus by the substitution of lime for oxide of iron, and with the same object in view had lined a Bessemen converter with lime, the results being quite satisfactory. These views were in a mea sure sustained by Dr. Siemens, who, how ever, pointed out the difficulty encountered in the use of lime in consequence of the inability of so friable a material to resist the charges. Though the information thus elicited attracted some attention, it was not until a letter by R. F. Mushet was published that the process hinted at became one of general interest. In his communication Mr. Mushet declares that "Lime will now thanks to Mr. Snelus, be found indispen sable to the practical and economic succes of the Bessemer process when applied to phosphoric pig or cast iron."

The interest which this letter excited in connection with the utterances of Mr. Snelus was universal, and it is a matter of some present value to briefly note earlier attempts at the utilization of lime in refining and puddling and trace the causes of their failure. The use of lime in puddling seems to the use of two to ten per cent. for improving cold-short iron; Gibbons also advocates a mixture of lime and ore and lime alone, the latter for the hottest part of the furnace Arkinstall, on the contrary, declares that such an addition makes the iron red-short, with a tendency to crumble under the hammer, and a similar experience is recorded by Percy, who describes some experiments made at Cyfarthfa, in South Wales. This, together with the fact that in practice silicious ores are generally used for fettling, would seem to warrant the opinion that the influence of lime is unfavorable, which theoretical considerations tend to strengthen. Cinder containing a large percentage of lime is difficult to melt, and is not easily expelled from the puddled ball. Its presence in larger amounts decreases the homogeneity of the metal, and makes the product inferior in quality. Lime cinder does not dissolve the ferroso-ferric oxide formed by the decarbonization of the pig, and therefore retards the puddling process. The failure sion of attending the use of lime in puddling has ment. undoubtedly prevented its employment in the Bessemer process; but as the object of "they would leave the town." Why were the former trials was rather to reduce the these scourges let loose to continue their loss of iron than to purify the metal, and depredations somewhere else? Was there no consequently its effects in that direction law by which they could be made to feel that ments cannot be regarded as conclusive, trifled with? In the case of tramps there The conditions of the Bessemer process and has been too much threatening and too little

ences of temperature materially affect the pound. The impression prevails that lead chemical relations of groups of bodies, lime will not recede to the low figures of June used either in lining the converter or by unless the summer and early fall trade is a blowing it in, as Dr. Wedding suggests, may this summer demand, however good it tance of the subject is such, and so few well might be, would not save lead from drop- conducted experiments are on record, that a series of trials on a large scale might lead

Explosions of Carbon Dust.

Our attention has lately been called to four accidents in blast furnaces, all more or less serious, caused by the explosion of finely divided carbon. The more recent of these deserves especial mention. On Monday, the 8th inst., a blast furnace was shut down for repairs and workmen began shoveling out. By Wednesday afternoon all the loose stock was out, leaving the scaffold hanging against the sides above the boshes. Workmen were cooling the suspended mass by means of a stream of water from below, when it sud-denly fell with an explosion, burning eight men, three of whom died. In the opinion of experts on the ground the explosion was caused by ignition of the finely divided carbon. After the explosion the air was full of it, and it settled on everything in the neighborhood. There is no evidence that the explosion was caused by the escape of confined steam or gas, as the mass lies as it fell, and nothing about the stack is broken or displaced. The phenomenon here noted is not unlike that to which attention was lately called so forcibly in the flour-mill explosion at Minneapolis, and the explosion in the candy manufactory in New York last winter which was attended with such loss of life Few people have a clear idea of the

and property. nature of dust explosions, and it is commonly supposed that some mysterious gas is spontaneously generated. A dust explosion is a very simple matter and easily explained. It is only the rapid, or almost instantaneous, combustion of the dust which is scattered through the air. As the products of combustion occupy many times more space than the solid particles, and as by the heat generated they are additionally expanded to many times their normal volume, we have almost exactly the same conditions that exist when gunpowder is fired; only in the case of gunpowder the oxygen necessary for the combustion is locked up in a solid form in the powder itself, instead of being derived from the air. A dust explosion will account in this case for all the phenomena of the accident. Accumulations of finely divided carbon in blast furnaces are common, and it is not unusual for them to be of considerable magnitude. In blowing out No. 4 Furnace of the Crane Iron Works, in November, 1877, for the purpose of putting in a new bell and making other repairs, a very extensive deposit of carbon was found, the greater part of which consisted of impalpable powder. In the second volume of the Transactions of the American Institute of Mining Engineers, Mr. Frank Firmstone calls attention to a similar deposit of carbon in a blast furnace. The explosion in the case under consideration is, therefore, readily explained by the supposition that one of these carbon dust deposits was disturbed, either by the fall of the scaffold or the stream of water, and at once took fire from some portion of the heated mass or by coming in contact with the atmosphere. This accounts also for the presence of the dust all around after the explosion. The number of these explosions during the past year, together with their severity, should teach manufacturers a lesson. Wherever fine dust from combustible substances is present in quantities in the air, as from coal, charcoal, coke, sugar, starch, flour, &c., there is danger, and naked lights and fires must be avoided. Sad experience has taught the danger which comes from the storage of oily rags, waste or paper, and it is time for the dangerous nature of highly divided combustibles to be known. It is quite probable that in the present instance an explosion could not have been avoided, but had it been anticipated the loss of life might have been prevented.

A dispatch from Council Bluffs, Iowa, says: Trouble with tramps continues. A party numbering about fifty seized and boarded a freight train on the Iowa Central Railroad at Dillon last night, and one on the Chicago, Rock Island and Pacific this morning at Atlantic. Armed squads of citizens in both cases compelled them to leave the train, threatening them with punishment." Why, we would ask, were e armed citizens who had rallied to the defense of the railroad content with threats of punishment? From Des Moines, Iowa, we learn by telegraph that a party of fifty tramps organized to seize and run off a train were met by citizens and militia, and, after a conflict, forty of the fifty were arrested-the rest escaping. The conclusion of the story is, however, a disappoint-"The leaders were locked up, but the rest were discharged on condition that its aims differ materially from those of pud- punishment. They have been emboldened by

worst penalty likely to be visited upon them is an order to " move on." tired of this easy-going toleration of vagrants. Tramps, as a class, are the redisappointment. Should production mean-while increase to a considerable extent, even been recently claimed for it. The imporadvantage of it. We shall never be rid of this great and growing evil until we declare vagrancy a crime against society, and make consequences terrible to the vagrants. Why this was not done years ago in every ramp-infested locality we are unable to understand.

Boiler Explosions from Sudden Relief of Pressure.

The very important communication from Mr. J. M. Allen, which we print on another page, merits careful perusal. It describes the incidents and probable causes of the recent destructive steam boiler explosion at the Chesaneake Nail Works of Mesers Chas L. Bailey & Co., near Harrisburg, Pa. Mr. Allen attributes the accident to a probable error on the part of the man in charge of the feed and steam connections, in opening the connection between two boilers which were carrying steam at unequal pressures. A careful consideration of the facts in the case will show that this is probably the correct theory. Nothing that can be done to a large boiler containing a great body of water at the temperature of steam, throws such a strain upon it as a sudden lowering of the steam pressure. Looking at the steam boiler explosions of the last fifty years, we find that by far the greatest number of the destructive ones have happened at a moment when the pressure of steam in the boiler was actually falling. Given a great quantity of water at the temperature of the steam in the boiler and we have, regardless of pressure, the material for a destructive explosion. All that is necessary to produce it is the rapid opening of the throttle or safety valve, so as to cause a sudden fall in the pressure. Hence, in factories the time when the greatest number of explo-sions take place is just as they are starting up at 1 o'clock-after dinner. On steamboats we find the greatest danger just as they are starting from their slips or after making a landing. The fatal Westfield explosion, if we remember rightly, was a case of this kind. A more striking example happened this spring to the steamer Magenta. She had just made a landing at Sing Sing and was moving down the river "under one bell," the engine going at half speed. As she was entering deep water the pilot rang the "jingler" to go ahead full speed. The fireman, who for the time being was in charge of the engine, pulled the throttle valve wide open. It needs but a moment's thought upon the comparative sizes of the cylinders of river steamers and the steam room of their boilers, to show that a considerable fall of pressure must have been the almost instantaneous result, and yet the boiler exploded at once, the steam chimney, which was much corroded, giving way. On Friday of last week the back connections of the boiler on the steamer Thomas Cornell were blown off just as she was getting under headway. The full details of the accident are not at hand, but everything indicates that the explosion took place just after the engineer had opened his throttle wide. Were the records available, it would be easy to find hundreds of other similar instances. The theory is simple. A large proportion of the heated water, relieved of pressure, flashes into steam, striking an irresistible blow upon the boiler and tearing through the iron like a whirlwind.

Opening of the Sutro Tunnel.

The cutting through of the Sutro Tunnel from the foot-hills of the Sierra Nevadas to the group of rich mines in the Comstock lode, nearly four miles distant, of which we last week had reports by telegraph, indicate that one of the most important of the world's undertakings in mining engineering is nearing completion. This now famous lode having been placed by nature 2000 feet above the adjacent valley, the idea of penetrating the bowels of the mountain by a horizontal adit or tunnel was favorably entertained by the mining companies at work in this region, who feared it might become essary to abandon the mines on account of the expense of pumping water, raising ore, ventilating, &c., at great depths. Moreover, as they descended further into the earth the heat became almost intolerable, sometimes reaching 120 degrees, so that laborers can only be employed in relays at short intervals. By giving an outlet to the accumulation of water, and extending facilities for working the mines, it would be nossible to follow the fissure vein in its descent almost indefinitely, the ore meanwhile growing richer and richer. It was conjectured also that the water found in the mines or collected from the surface could be conducted to hydraulic engines placed in the interior and utilized as a motive power to raise water from great depths below, discharging it through the tunnel. Thus, according to Prof. Weissbach, the Comstock lode in the future may be worked profitably to a depth of at least 3500 feet, or deeper than similar workings in any part of the world. In furtherance of these views the State of Nevada, in 1865, granted to Adolph Sutro the excluwere not closely studied, the earlier experi- the rights of a community are not to be sive right for 50 years to run the proposed tunnel, and subsequently a contract was made with all the leading companies, in which they agreed to pay \$2 per ton for all

complete and actually drains the mines; or, if they are not drained, then after a lateral drift reaches any mine. In 1866 the Federal government granted the right of way through the public domain for seven miles along the Comstock lode; also the right to select 1280 acres of land at the mouth of the tunnel, and the right or title to the mines for 2000 feet on each side of the tunnel, equal to a concession of 5080 acres of mining land. By the same authority all the mines of the Comstock lode are made tributary to the tunnel, the same as in the contract mentioned above. These measures were carried in response to recom mendations and memorials signed by all the prominent mining officials, bankers, &c., on the Pacific coast. Among these latter were the late W. C. Ralston, William Sharon, John Parrott and many thousand residents.

The tunnel has been in progress some eight years, and not far from \$3,000,000 ou of about \$4,000,000 required to complete the work and its railway connections have been expended up to this date. The Tunnel Company expect that a considerable town wil spring up on their property, and that the re sults of their undertaking will be permanently profitable to themselves, the mining interests of Nevada and the whole country

A dispatch from Paris bearing date o July 11 states that nearly all the class jurie of the Exhibition have finished their world and submitted reports to the group juries The latter have passed upon the reports thus far presented, making very few changes Nothing is officially known of the result but it is unofficially stated that the Amer icans have obtained more prizes than the citizens of any other country in proportion to the number of exhibitors. In one class all the American exhibitors have obtaine medals; in another all except one. It is thought the United States will have five o six grand prizes, and a liberal number of gold medals. Foreign juries have expresse much admiration for the excellence of th articles in the American section of the Ex hibition. The General Commission has in creased the number of gold medals 20 pe cent., silver medals 40 and bronze medal 60 per cent., all of which is good news t American exhibitors.

The report on coke manufacture by th commissioners for the second geological survey of Pennsylvania, printed on another page, contains much interesting informa-tion. It furnishes a good illustration of the great importance of the famous Connellsville coke industry. In a brief discussion of quality a very sharp line is drawn between properties due to physical structure and those due to chemical composition, a distinc-tion which is too often neglected. A series of estimates of cost by Mr. John Fulton, M. E., will be found very useful. The figures giving the comparative value of the methods of coking in mounds, beehives and Belgian ovens are very important for purposes of comparison, although they cannot be accepted as determining the choice of methods of coking under all conditions.

The statistics of commercial failures in the United States during the first half of 1878, which are given in another column, make a startling exhibit of the actual state of trade throughout the country. As compared with the first half of 1877 the number of failures shows an increase of over 1000, or about 25 per cent., while the liabilities are \$130,000,000, against \$99,000,000 last year. A careful examination of the statis-tics and the discussion which accompanies them in the semi-annual report of Messrs. Dun, Barlow & Co., part only of which we publish this week, will repay all classes of our readers.

We give on another page a valuable report from the United States Consul at Copenhagen to the State Department. It will be found of much interest, as it gives with great particularity the wages, cost of living, state of trade and labor in Denmark, and also describes the currency and business ods of the kingdom

The views of Gen. W. S. Rosecranz on our trade with Mexico, which are given this week, will be found of interest and value to those engaged in extending our export business in that direction.

Mr. James Roy, well known to the hard-ware trade as the founder of the old house of Roy & Co., died at his residence in West N. Y., on the 9th inst., aged 70 Mr. Roy was, we believe, the pioneer in the manufacture of strap and T-hinges and wrought butts in this country. He was a native of Scotland, but resided in this country for over 50 years. Besides his large interests as a manufacturer of hard-ware, he was well known as a manufacturer of woolen goods, being the senior member of the shawl manufacturing establishment of James Roy & Co. He has left surviving him aree daughters, two of whom are married one the wife of Capt. A. H. Sweeny, of West Troy, and the other of Capt. George Sweeny, of the British army.

It was lately reported that \$3,000,000 had been obtained in Europe to resume work on the Hudson River Tunnel to connect New York and Jersey City, but several of our prominent engineers and bridge builders who were called on by a representative of The Iron Age expressed serious misgivings as to its truth. Col. Rose, an officer of the Pennsylvania Railway Company, remarked yesterday that whether true or not the various railway corporations took no interest in the project.

Failures for the First Half of 1878.

Messrs. Dun, Barlow & Co. send us the following report for the six months ended with June

The following is the number of failures in the United States and Canada for the past six months, as compared with the same period of last year, together with the amount of liabilities

Second Quar. Total for first Total for firs

8	ľ	in	1878.	6 mo	nths of		nths of
0	States and	168	Diff.	f ces.	Dill.	leg.	DIE.
0	Territories	No. of Failure	Amou of Lia	No. of Failure	Amou of Lial ties.	No. o Failur	Amoun of Liabi ties.
0	Alabama	6	877,094	25	8461,672	33	\$526,031
,	Arizona	10	13,000	26	42,107	15	176,325
	California.	59	523,000	139	1,343,341	179	1,456,756
0	City of San Fr'ncisco	61		116	1,826,747	78	r Son our
t	Colorado	13	133,769	26	337,373	21	386,400
	Con'cticut.	73	1,355,201	150	337,373 2,795,640 83,000	162	2,930,740
0	Dakota Delaware	9	81,000	7 88	96,500	3	18,500
n	Dist. of Co-		-				
1-	lumbia	8	41,138	17	164,202 76,638	19	733,600
n	Georgia	39	863,772	88	1,523,562	96	703,696
	Idaho	78		282	4,898,131	244	4,113,800
9=	City of Chi-		816,430		4,090,131	-44	
1-	C8g0	104	3,480,000	215	8,753,300	107	4,710,600
g	Indiana	73	1,133,000	254	3,948,549	178	2,234,885
	Kansas	7	1,021,000	20	424,550	22	1,543,400
٠	Kentucky Louisiana	81	1,446,880 986,306	145	4,759,258	33	3,943,750
	Maine	43	144,000	117	803,900	54	434,518 571,000
of	Maryland	31	144,900	63	803,900 1,246,880	71	1,756,502
38	Mass City of Bos-	180	4,758,422	354	7,817,431	268	4,190,128
k	ton	81	2,061,300	175	6,536,523	41	2,161,200
	Michigan Minnesota.	34	1,552,554	219	4,008,025 385,963	176	1,096,515
5.	Mississippi	36	241,170	55	807,160	58	500,680
18	Missourl	15	177,212	47	807,160 738,216	43	461,842
В.	City of St. Louis	20	129,700	62	861,500	63	3,491,250
t,	Montana						
	Nebraska	17	91,300	65	472,200	28	460,329
r-	New Hamp	34	134,500	57	276,800	35	220,162
10	New Jersey	40	634,000	77	1,083,800	87	1,950,828
n	New Mex'o New York.	207	3,124,725		8,538,844	571	9,845,590
88	City of N.						
d	N. Carolina	36	7,910,900	424 58	23,395,412 499,400	434	16,545,064
	Ohio City of Cin-	113	1,385,084	029	6,831,233	199	411,965 3,130,037
18	cinnati	60	1,804,148	106	3,215,080	56	1,813,890
or	Oregon					18	175,904 6,052,957
of	Penna City of	205	5,488,923	429	11,714,554	300	6,052,957
d	Phila	70	1,414,122	135	5,402,466	83	2,215,873
	R. Island S. Carolina.	34	389,322	67 38	055,225	54	2,183,587 924,496
10	Tennessee.	16	311,154	123	513,561	56	602,450
K-	Texas	49	478,490	145	1,873,510	77	602,450 1,006,620
n-	Utah Vermont	3 23	42,500	62	1,070,600	49	30,000 400,863
er	Virginia	41	395,500	62	612,044	52	439.734
ls	Wash'ngtn Territory.						45,800
	W. Va	10	132,000	23	227,736 1.398,916	36	351,920
to	Wisconsin.	49	167,022	99	1.398,916	76	1,143,956
	Wyoming	3	14,000	-	24,000	-	******
	Total	2,470	18,753,940	5,825	130,832,766	4,749	99,606,171
he	Canada.	392	4,407,800	947	13,508,739	1,223	15,151,837
W-	-	1	1			1	

In order to keep a record by quarters for the purposes of comparison, and also to show the average liabilities, the following table is inserted. It will be seen that the failures and liabilities for the second quarter just closed are much less than for the first quarter of the year, but that the figures for both quar-ters are far above the usual amount:

	First Q	uarter.	
Years. 1875	No. of Failures. 1,982 2,806 2,869	Amount of Liabilities. \$43,176,953 64,644,156 54,538,074 82,078,826	Average Liabilities. \$21,784 23,038 19,010 24,464
	Second (Quarter.	
1875 1876 1877 1878	1,794 1,880	33,667,313 43,771,273 45,068,097 48,753,940	21,295 24,398 23,972 19,738
	Third Q	narter.	
1875 1876 1877	1,816	54,328,237 47,857,371 42,346,085	30,676 19,534 23,318
_		Quarter.	
1875 1876 1877	2,042	70,888,850 34,844,893 48,717,680	25,475 17,064 21,117
		the Year.	
1875 1876	9,092	201,060,333 191,117,786 190,660,936	21,020

The failures in the United States for the inst six months of the present yeer are 5825, as against 4749 in 1877, an increase of over 1000 in number, equal to nearly 25 per cent. The liabilities for the first half of 1878 are The habilities for the first half of 1878 are \$130,000,000, as against \$99,000,000 for the same period of last year, a percentage of increase still greater. These figures are of very grave import if taken as an indication of the state of trade, for never before in an equal period in the history of the country have business misfortunes been so numerous or aggregating an amount of loss by bad debts so great. But before accepting merous or aggregating an amount of loss by bad debts so great. But before accepting these statistics as a true test of the present condition of business, there are some points to be considered which might materially which otherwise would be inevitable. That any substantial progress toward business pros-perity could have been made in the face of the adverse circumstances of the past six months would be a matter of surprise; on the contrary, it is a subject for congratulation that, considering the preceding period of depression and distress, the business misfortunes of the half year have not been greater in view of all that has occurred therein. These adverse conditions may be briefly stated as follows:

1. An unusually open winter, resulting in a greatly reduced absorption of heavy goods, which are to a large extent being carried over for the entire year; the want of frost rendering almost impassable country roads, and thus materially interfering with the deliveries of produce, and the consequent collections of outstandings onths later than usual. That great embarrassment and not infrequent failures were caused by these circumstances is unde-

2. The discussions in and out of Congre in relation to the silver bill, and the anxiety as to the effects of the numerous financial as to the effects of the numerous financial questions that occupied so large a space in the public mind, seriously impaired confidence; and aside from the freedom with which repudiation and kindred subjects were discussed, to the great injury of mercantile morality, business facilities and operations were materially restricted by the uncertainty and doubt as to the future which prevailed during so many months.

Condition of the Blast Furnaces of the United States, July 1, 1878.

(Compiled for The Iron Age).

		o	HARCOA	AL.			A	NTHRA	CITE.		В	TUMI	NOUS C	R CO	KE.
Location.	Total number of stacks.	Number reported in blast.		Number reported out of blast.	Capacity per week.	Total number of stacks.	Number reported in blast.	Capacity per week.	Number reported out of blast.	Capacity per week.	Total number of stacks.	Number reported in blast.	Capacity per week.	Number reported out of blast.	Capacity or week.
New England New York	18	6.7	210		976				1						
New Jersey	13	3	180		669	43		44 9 0							
Pennsylvania						16	5	1,170	11						
Tokick Valley	37	14	589	23	986				****						
Lehigh Valley						50	32						. N		
Schuylkill Valley						50	17								
Upper Susquehanna Valley						24	7	1,230	17						
Lower Susquehanna Valley						37	15	2,615	22	2,895					
Pittsburgh											12		3,980		1,45
Allegheny Valley											10	4	430	6	60
Shenango valley											31	7	1,475	24	4,93
Tough env valley											12	3	975	2	40
Juniata and Conemanda Valley											21	13	2,470	8	1,03
Maryland	17	5	305	12	550	3			3	450	4			4	45
Virginia	28	2	86	26	1 T20	1			1	140	5	2	220	3	25
North Carolina	7			7	274										
west virginia	6			6	4.12						6	3	1,075	3	7.4
Ohio															
Manoning Valley											20		2,250	12	2,63
Eastern, Central and Northern											22	8	2,010	15	
Hocking Valley	1			1							12	IO	1,385	31	
Hanging Rock	3.2	10	1 280	7.65	1,200						16	5	590		2,08
Miscellaneous	3			2	225										
Kentucky															
Hanging Rock	7	5									3	3	1,050		
Western region and Miscellaneous	8			8	566						1	T	300		
Tennessee	17	3	300		918						7	2	350	5	2,0
Georgia				6	375						3	2	275	I	I
Alabama		3	465	8	775						2		350		
Indiana	1			1 1								I			1,2
Illinois											12	4	1,250	8	2,9
Michigan	31		760	26	3.475						4			1	
Wisconsin	12														- 1
Minnesota															
Missouri	11												450	6	2,2
Texas	1														
Utah															
Oregon															
	_						-					7.5.7		-	
Total	260									23,695		0	21,735	1 0	

themselves of its provisions in the ordinary course of business, a large number have ap-plied for relief from their indebtedness who might have gone on and paid in full but for the temptation afforded by the postpone-ment of the repeal till the 1st of September; while an equally large number of those whose operations had resulted disastrously years ago, but perhaps had never an-nounced a formal suspension, had been moved to go into bankruptcy in order to get a discharge from old obligations and compli-cations, which would be impossible after the act of repeal became effective. Thus the list of failures has been daily added to; and in consequence of the postponement of the date of repeal of the bankrupt law there has been compressed into the space of a few months not only the anticipated troubles of the future, but the revelations of the misfor-tunes of the past.

tunes of the past.

5. The steady decline in prices of merchandise, and the general shrinkage which has been even more noticeable in the past six months than at any period since 1873, have been productive of numerous misfortunes, and, after so long a period of depression, have altogether so discouraged business men that many have been unable to withstand the pressure. The uncertainty before referred to which has characterized the year thus far, has doubtless had its inbefore referred to which has characterized the year thus far, has doubtless had its in-fluence in depressing values, especially whenever it became necessary to realize; but the fact that all over the world the course of prices has been downward, and even the most sagacious and conservative business men have been baffled in their attempts to do business with profit, indicates how largely this condition of things may how largely this co

We have thus briefly endeavored to enumerate five leading considerations, which, combined with others always existing, have had a prevailing influence in the past six months toward increasing the figures of failures given above. When it is considered that there are now over 700,000 persons and firms reported in active busine agency, and that of this vast army only a limited number possess a surplus sufficient to withstand such a lengthened period of depression, disappointment and loss as it has een the fate of the country to undergo, it need not be considered as a measure of great disaster that additional circumstances so un favorable should swell the failure lists to the extent above recorded. That these circumstances were only temporary in their dura-tion, and that certain of them (as in the case of the repeal of the bankrupt law, resumption, &c.) may have a tendency to lessen the number of failures hereafter, are points in favor of the future; and therefore how-ever discouraging the figures above pre-sented may at first appear, it would be unfair to regard them as an index to the real or permanent condition of the country.

There are other indexes to the condition of business which, though perhaps hardly as precise, are nevertheless of far greater value in determining the future. That there are still too many in business in proportion to its volume and profitableness there is no denying, and that failures are likely to occur while this condition lasts is equally certain; but this does not alter the great fact that the country is rapidly recovering itself, and that by the success of agricultural opera-tions great bodies of producers over vast sections of the country are materially increasing their purchasing power. It is true that which prevailed during so many months.

3. The possibility of important changes in the tariff was not without its influence, and to some extent contributed to the condition.

It is true that in numerous manufacturing centers depression still reigns, and no revival is hoped for to some extent contributed to the condition.

St. LOUIS, MO.

Mercantile experiences here of the past year have been but a repetition of those endured ever since the effect of inflation and outline to the country are materially included.

Mercantile experiences here of the past year have been but a repetition of those endured ever since the effect of inflation and outline to the country are materially included.

of uncertainty that has been the prevailing characteristic of the half year.

4. The repeal of the national bankrupt law has, perhaps, more than anything else themselves, is a hopeful sign, for the neces-4. The repeal of the national bankrupt law has, perhaps, more than anything else been influential in increasing the number of failures. In addition to the number whose circumstances really compelled them to avail and other and agencies there have been very frequent applications for farms from those hitherto engaged in other pursuits, is one of the most cheering signs of the times. As a country we are most fortunate in this, that millions of fertile acres are available at that millions of fertile acres are available at a merely nominal price, and that with very little effort not only a living, but comfort and eventual independence are possible to families willing to work. In no form could organized philanthropic effort be better shaped than in encouraging by information, direction and even material aid, a movement from manufacturing centers to the chean from manufacturing centers to the cheap lands of the West and South. If by firm-ness on the part of wholesale merchants in refusing settlements and compromises in the event of failure, a similar movement could be induced among the large army of unnecessary retailers and middlemen now dividing up between them the limited trade of the hour, an early solution would be found for many difficulties from which the business of the country suffers. That these results will be of necessity gradually accomplished is certain, and the sooner the better for all concerned. There are numerous other indications of

There are numerous other indications of an encouraging character; the enormous amounts realized from both natural and manufactured products exported, the certainty of magnificent crops, the continued success attending the development of mineral resources—all point to a steady gain in national wealth. The probability of early resumption of specie payment is another most encouraging circumstance, and taken in connection with the likelihood that values have touched their lowest point, will result in begetting a degree of certainty and stability to which the trade of the country has been a stranger for some time past. The repeal of the bankrupt law, it is thought by some, will have a good effect in weeding out of business that class of persons—both traders and officials—who have hitherto availed themselves of its provision to make money by failures; and though the evils incident to the preferences permitted by the action of various State aws are serious to contemplate, neverthee experiment of the abrogation of the national law will, for the time being, at any rate, remove a cause to which has been attributed—whether justly or not—no small portion of the troubles which it has been our duty to chronicle

Because there has been frequent disappointment in the expectations hitherto en-tertained of a return to a better condition upon indications both numerous and favor-able. But never before were there of business, there is less disposition to rely But never before were there present so many conditions essential and contributive to confidence than at present appear and though it would be the utmost folly to indulge in expectations of a rapid return to prosperity, it is next to impossible that the immediate future can be otherwise than encouraging to those whose affairs are in condition to avail themselves of better times.

We present, as is the usual custom at this season of the year, a synopsis of the reports from various representative sections of the country, prepared by the managers of our branch offices, after consultation with leading business men. The reports, upon attentive perusal, will fully confirm the impression that there is much in the present to encourage a hopeful belief in the future.

sity will then become apparent that a numerous class should adapt themselves to other industries; and the fact that at government and other land agencies there have been very frequent applications for farms from these hitherts engaged in other very sites. mitted that the "revival," so often and confidently predicted as near at hand, is to be of more gradual approach, and that it will only reach us finally by wise and economic administration in affairs private as well as public. Under this conviction the majority of our merchants are shaping their majority of our merchants are shaping their future, buying sparingly, and resisting, as far as possible, the pressure of competition toward loose credits, low prices and long time. Most people are satisfied if the end of a year shows expenses made, with a fair rate of interest for capital; but even this much is only attained by closely watching all the points, coupled with a strict conservatism and ample facilities. During this entire depressed, or rather let us hope and say, convalescing period, the West has enjoyed an almost uninterrupted succession of say, convalescing period, the West has enjoyed an almost uninterrupted succession of bountiful harvests, and the present indications are said to be exceedingly promising. Our paying capacities therefore will likely be as good as ever, while our debts are probably less, and our prospects are certainly no worse. The general feeling may be described as hopeful, but not overconfident, of any marked improvement in the near future.

CHICAGO, ILL.

There is no division of opinion as to the promise of a large harvest of small grain, promise of a large harvest of small grain, and fine prospects of an abundant corn crop throughout the Northwest, excepting a portion of Illinois and southern Iowa, where too much rain has fallen. Even in these portions the recent favorable weather has worked great good. Such a large crop, following that of last year, is almost certain to obtain low prices, and herein the too sanguine, it is thought, will be disappointed. At the opening of trade last fall the prospects were so flattering that the country merchants bought heavily, and the late fall and mild winter compelled them to carry over largely of their heavy goods, so it is expected that the trade for this fall will beexpected that the trade for this fall will gin light as compared with last year, but be steady and healthy as the season advances, if there are no drawbacks now unforeseen. The collections so far have been up to the average of the past two years, though a great many of the country merchants have asked for indulgence till after harvest.

MILWAUKEE, WIS.

In relation to prospects for fall trade it is oo early in the season to get a definite idea. However, the general opinion is that in view of the present excellent prospects for a large crop the fall trade will be fair, although not so large as last fall, owing to the fact that last fall country merchants bought heavily, and in consequence of the mild winter failed and in consequence of the mild winter failed to dispose of much more than one-third of their stocks, such as dry goods, clothing, boots and shoes and hats and caps. The country is full of this class of goods, and jobbers in these lines do not anticipate more than a moderate fall trade in consequence. Dealers in other lines are more hopeful, yet, notwithstanding a realization of the present crop prospect, and although grain may command a better price than is at present anticipated, they do not expect more than an average fall trade. After the heavy harvest of last year it was expected that farmers would pay off their store debts largely but this much-needed consummation has fallen far short of realization, and collections are dragging slowly yet. Business generally is dull and margins very close, but hope Mercantile experiences here of the past still holds a place in the hearts of the busi

(To be continued.)

AMERICAN SCREW CO..

Providence, R. I.,

MANUFACTURERS OF MORE THAN 4000 VARIETIES OF PRODUCT,

Machinery employed contains important inventions recently patented, and which are designed to produce Screws at a lower cost to the consumer than has ever been attained.

All goods are distributed through the Hardware trade, to whom a liberal discount will be allowed.

(No. 235.)

INTERNATIONAL EXHIBITION.

PHILADELPHIA, 1876.

The United States Centennial Commission has examined the report of the Judges, and accepted the following reasons, and decreed an award in conformity therewith.

PHILADELPHIA, November 8, 1876.

REPORT ON AWARDS.

Product: Iron, Brass and Steel Screws, Tire and Stove Bolts, Rivets. Name and address of Exhibitor: American Screw Company, Providence, R. I.

The undersigned having examined the product herein described, respectfully recommends the same to the United States Centennial Commission for Award, for the following reasons, viz: Being of a quality nearly approaching perfection, showing the highest attainment G. L. REED. Signature of the Judge. in this branch of manufacture.

Approval of Group Judges

Daniel Steinmetz. Jas. Bain,

G. L. Reed, J. D. Imboden,

J. Diffenbach, Day. McHardy.

Chas. Staples, cord. Francis A. Walker, Chief of the Bureau of Awards. A true copy of the record. Francis A. Walker, Chief of th Given by authority of the United States Centennial Commission.

A. T. GOSHORN, Director-General.

J. L. CAMPBELL, Secretary. J. R. HAWLEY, President.







After forty years' experience we offer to the trade our Centennial Screws, patented May 30, 1876, as the best we have ever known.

The method of manufacturing is also patented, and we are changing our machinery as fast as possible, to manufacture the improved article only. To introduce them, they will be sold at the same price as the old style screw.

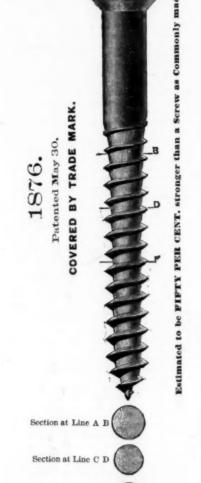
The new screws will be packed in manila colored boxes with the new label covering end of box, and enlarged figures showing plainly contents.

To distinguish this screw we have adopted a trade-mark, which is also secured to us.

The accompanying engravings show the progress of making screw from the old blunt point to style now adopted.

Experience has shown that the weak point of screws, as formerly made, is at the heel of the thread, where all

Section at Line A



Section at Line E F

the strains of forcing the screw into the wood naturally concentrate.

To avoid the sharp angle existing in the old style of screws has been the aim of all manufacturers, but every expedient hitherto adopted has proved as objectionable as the evil complained

It will be seen in our new screw that not only is the sharp angle avoided, but the strength very much increased, as illustrated. See sections at lines.

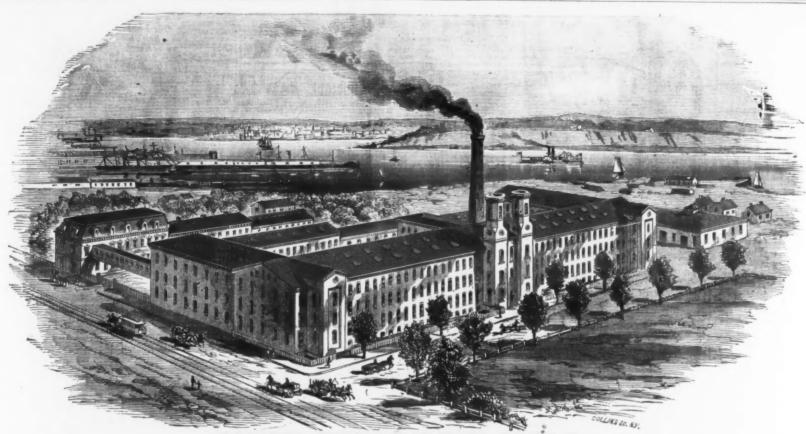
CLAIM.

"A Pointed Wood Screw having the outer periphery of the thread upon its body cylindrical, while a portion of the body below the thread and near the neck is conical, the remainder of the body to the point being cylindrical, and yet having all the thread brought to an edge of a constant angle, without jogs in the paths between the threads, substantially as described."

On the opposite page will be found illustrations of the various Works of the company.

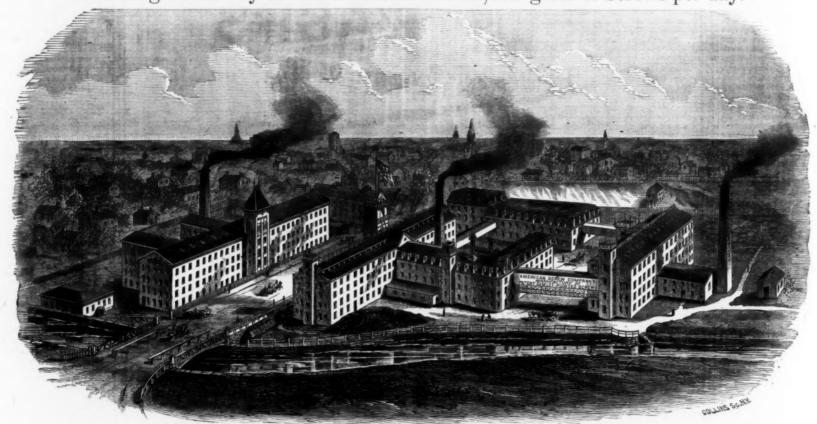
Section at Line C D

Section at Line E F



NEW ENGLAND MILL.

Containing Machinery for the Production of 22,500 gross of Screws per day.



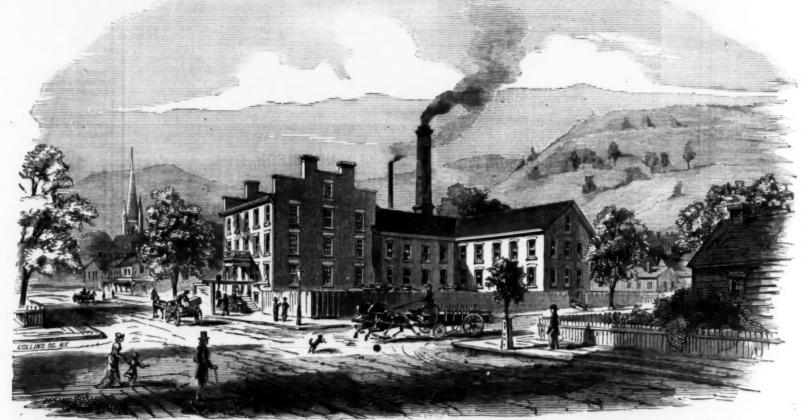
BAY STATE AND EAGLE MILLS.

BAY STATE MILL,

For the Production of Stove Bolts, Tire Bolts, Rivets, Lock and Machine Screws, &c.

EAGLE MILLS.

Capacity 22,500 gross Wood Screws per day.



WORKS AT DUNDAS, ONTARIO, CANADA.

Capacity, 4000 gross Screws per day.

Coke Manufacture in Pennsylvania.

To a special report on coke, just published by the board of commissioners for the second geological survey of the State of Pennsyl-vania, a very full account is given of the Connellsville coke trade, with much valuable

connensyme coke trade, with much various methods information relative to the various methods of making coke, the cost, &c.

As yet, what is known as the "Connelswille region," lying chiefly within Westmoreland and Fayette counties, Pennsylvania, is the great coke-producing district. The reasons for this are that the coal is very free from sulphur and slate, is soft and easily from sulphur and slate, is soft and easily mined, and can be manufactured into coke more cheaply than perhaps any coal found elsewhere. The cost of cutting this coal in 1875 was but one cent a bushel (only about 28 cents a ton), and it was, at that time, made into coke and delivered on the cars for \$1.37 per net ton.

This coal bed ranges from 8 to 11 feet in thickness, and extends, almost without a

This coal bed ranges from a to it feet in thickness and extends, almost without a fault, over a district three miles wide and 50 miles long. Previous to 1865 coke was little known or used in the country, but since that time its manufacture has enormously increased, and without doubt it is to be the first left for wetally recovery. increased, and without doubt it is to be the fuel, at least for metallurgical purposes, in the future. From the work referred to we extract the following table, which illustrates the extent of the development up to 1875. The 1st column of figures represents the number of works; 2d column, number of ovens; 3d column, number of weekly shipments, in case of fee bushels.

ments in cars of 600 bushels:
Fayette county branch, P. & C. R.R. 7
Southwestern Pennsylvania R. R.... 9
Mount Pleasant branch P. & C. R. R... 21
Hickman Run branch P. & C. R. R... 8 569

....45 3.578 2,171 Total for region..... Over 2000 men are employed in manufac-turing this coke, and it is shipped to all parts of the country, even as far west as California. The qualities of a good coke are a bright silvery color, clear metallic ring (combined

with an open and porous structure) and free-dom from impurities. All bituminous coals are not suitable for the manufacture of are not suitable for the manufacture of coke even when they are similar in chemical constitution to good coking coals. About the only way to determine a doubtful case is to make a practical test, which can usually be readily and cheaply done on a small scale. It has been the experience of all who have given the subject thorough and practical investigation, that a coal which does not make good coke in a common pit or beehive oven will not yield a satisfactory product in any oven. This, it will be understood, applies only to the physical structure of the coke and not to its composition. If the coke be poor because full of sulphur, or weak on account of the presence of slate, the trouble can be remedied by washing the coal before coking, and in all experiments tried in this vicinity so far this most important want has not been satisfied.

vicinity so far this most important want has not been satisfied.

The ovens in use generally are in the form of a beehive, being almost 6 feet high and 12 feet in diameter. The raw coal is thrown in through an opening in the top and air is admitted through a door at the side, promoting sufficient combustion to drive off the the hydrocarbons and leave the fixed carbon and ash. The door at the side is gradually closed up, and finally the top is also closed and the coke left for a time, after which the door is opened and the glowing mass cooled with water from a hose. The coke is called 24-hour or 48-hour or 72-hour, according to with water from a hose. The coke is called 24-hour or 48-hour or 72-hour, according to the time occupied in making it, the longer time producing a better and harder coke. The yield of coke is greater in bushels, though of course less in tons, than the coal used. For the beehive ovens used at Connellsville the following figures are given for each charge:

100 bushels of coal @ 76 lbs. per bushel.

Yield of coke, 63 per cent.; loss, 37 per cent. This makes the consumption one and six-tenths tons of coal to one ton of coke. The loss of carbon is about 9 per cent.

An estimate of the cost of this method

of coking from actual results gave these no bushels of coal, burning cost. Hauling and putting in oven.... Drawing and loading on cars....

The production, from the figures \$2.70
above, would be 120 bushels of coke, equal,
at 40 pounds to the bushel, to 2.4 net tons.
This makes the actual cost on the cars \$1.15
per net ton. An analysis of this coke gives:
Water at an degrees.

Color of ash, reddish brown

Color of ash, reddish brown.

This analysis will be found useful for comparison, it being a fair average of the product of this district. When coal requires washing to remove slate and sulphur, a washing to remove slate and sulphur, a slight addition is made to the cost of the coke. Various forms of washing machines are in use. A detailed account of the method and cost of washing at the works of Messrs. Carnegie & Co., near Pittsburgh, places the cost of washing at about one-half a cent per bushel, or 12 cents per ton of 2000 pounds. The total cost of the four washers and machinery for working them was about \$5000. Mr. John Fulton, M. E., in a report on the methods of coking, cives these comparative estimates of cost. gives these comparative estimates of cost, assuming the raw coal to be worth \$1 a ton at the ovens. The figures form a most valuable basis for comparing the different methods in common use:

I.—PITS OR MOUNDS.

Hollidaysburg and Bennington, 1.67 tons coal, at \$1.

Labor, wood, &c. Total cost of one gross ton of coke. \$2.37 II.—BEEHIVE OVENS. Connellsville, 1.60 tons, at \$1. \$1.60 Labor, charging and drawing. .61 The cost of the coal and labor of coking

ALSO LANE'S PORTABLE COFFEE ROASTER Will roast 30 to 40 lbs. at once, and can be used as a stove at other times. Send for descriptive list to Manufacturers.

LANE BROS., Millbrook. N. Y.

Also sold by leading wholesale houses.

Our agents, Graham & Haines, 113 Chambers St., New York, Ty a full line of our goods, and will be pleased to serve you at Factories.

TUCKER & DORSEY,

MANUFACTURERS.



one gross ton of coke by the three methods nsidered is as below: Pits or mounds, \$2.37.

II. Beehive ovens, \$2.20. III. Belgian ovens, \$1.87. This comparison takes no account of the interest on the investment required by the different methods. Allowing for this at 10 per cent., Mr. Fulton makes this com-

Mounds or pits, \$2.37 3-5

J. Mounds or pits, \$2.37 3-5.

II. Beehive ovens, \$2.33 3-5.

III. Belgian ovens, \$2.06 3/.

The estimated cost of the plant for the production of 100 tons of coke per day (exclusive of trucks, cars, &c.) is:

J. Pits or mounds, \$1000. Pits or mounds, \$1000.

\$55,300.
These figures, while correct for the examples given, do not imply that the Belgian ovens are always the most desirable, because it is necessary to adapt the oven to the peculiar treatment required by each coal, and that is a matter not easily determined ex-cept by experiment.

II. 80 beehive ovens, \$32,000.
III. 65 Belgian ovens (including engine),

American Stoves at the Paris Exhibi-

The special correspondent of The Iron Age at the Paris Exhibition sends us the folowing notes of the American stoves there

ABENDROTH BROS.

make the finest display in the American Department, and as good as any I have seen in the Exposition. The castings are very fine, in the Exposition. The castings are very fine, being smooth, with sharp edges, well-defined corners and miters, and very distinct in the ornamentation. The character of the castings is attracting a good deal of attention from Englishmen especially, and they will hardly believe that they have not been polished, and with characteristic effrontery they ask, in a tone that implies it must be so, "You use Scotch pig!" and on being told "No, not a pound," look incredulous. A fine medallion of the late Pope Pius IX, made from a plaster mold and to which nothing has been done, not even brushed, is very good; the tracery in the robe is very distinct. The ornamental work in iron that they exhibit does them much credit. The vases that stand at the entrance are graceful they exhibit does them much credit. The vases that stand at the entrance are graceful in design and well executed. This firm's exhibit of stoves includes over 40 styles, and is described by them as a general line. It includes the Uncle Sam, Companion, Saxon, Opera, Derby, Fire Side, Toy, Cotton Plant and many others. The display is altogether creditable and will do much to popularize American stoves on the Continent. American stoves on the Continent

RATHBONE, SARD & CO. have a very good, though not very large, exhibit, their application for space being necessarily cut down. They confine their exhibit to stoves adapted to burning the European bituminous coal and coke, and visitors who are accustomed to use the rude and wasteful stoves which are made in Europe express their admiration and wonder at the heauty and convenience of these American. wasteful stoves which are made in Europe express their admiration and wonder at the beauty and convenience of these American stoves. Their exhibit comprises the Prize Medal Cook, with reservoir and closet, a solid-looking stove, which even an Englishman would approve as having strength enough for soft coal. Their Delmonico Range, with low closet, high closet and low reservoir, is a very fine article, shows well and attracts much attention. All the doors have rich-looking plated panels, and all their exhibit is adorned with bright surfaces, nickel-plated knobs, &c. Other less expensive stoves are also shown, which appear better adapted to the working classes who earn light wages.

One of the most prominent features of their exhibit is a Dauntless base-burning magazine stove for soft coal. This class of stove for hard coal has long been in successful use; for soft coal the difficulties to overcome are much greater, but they have not been insuperable, and if the merits of this construction were as well known in England as they are in our Western States, it is not unreasonable to suppose that a change in English methods of heating houses would result.

LEIBRANDT & M'DOWELL,

Philadelphia, exhibit some 23 cook and heating stoves of various styles and patterns.

These were sent over with the Philadelphia and Reading Railroad exhibit, and are intended to show how anthracite coal is burned in America. Part is contained in the agri-cultural section and part outside of the machinery department, mounted on the huge lump of coal sent over by the Reading Coal and Iron Co. Among the styles shown is the Cosy, a small range, the Reliance, Victor and Improved Victor, all ranges, and the Charm Cook. In parlor stoves they have the Index, Sun, Radiant and Octagon.

THE RETORT GAS STOVE CO.,

Providence, R. I., exhibit five of their stoves, one of sheet iron, 2 feet high, for warming purposes; one with a bake oven, and three for general use—cooking, heating, boiling, &c. The heating stove is in operation.

THE OPEN STOVE VENTILATING CO. This house show one of their well-known stoves, the "Fire on the Hearth," which has been so fully described in *The Metal Worker* that no details need be sent by mail.

The last job of work at the Springfield armory under this year's appropriation was finished last week, and the works were shut finished last week, and the works were shut down for a week to allow the inventory to be taken. It rarely happens that the work comes out so even at the end of the fiscal year as in this case. Work was resumed again this week on the appropriation of \$150,000 for the year that began July 1. As this appropriation, though \$50,000 larger than last year's, is for several months longer time, it does not allow the same force to be employed that was at work when the last year closed. In some departments the reduction of force is greater than in others, the operations performed by one man being in some instances increased. Approximately a fifth of the men at work last month cannot Window Locks.

Cheapest and best in the market. Send 25c. for sample, price list, &c., to PRED. J. HOYT

733 Broadway, N. Y.

in some instances increased. Approximately a fifth of the men at work last month cannot be called in now. It is expected to turn out 70 finished guns a day through the year, and the number may be increased to some extent through the manufacture of militia arms and other causes.

NICHOLSON FILE CO.,

Sole Manufacturers of

FILES

RASPS

HAVING THE INCREMENT CUT.

Filers' Tools & Specialties.

"Nicholson File Co.'s" Files and Rasps,

"Double Ender" Saw Files,

"Slim" Saw Files,

"Racer" Horse Rasps,

Handled Rifflers,

Machinists' Scrapers,

File Cards, File Brushes,

Surface File Holders,

Vise File Holders,

Stub Files and Holders,

Improved Butchers' Steels.

Both our Treatise and our First or No. 1 Catalogue are now ready for distribution; the former to our customers, free of charge, with first goods ordered, the latter will be sent upon application to anyone interested.

Manufactory and Offices at Providence, R. I.

EXECUTIVE OFFICERS:

W. T. NICHOLSON, Pres't.

GEO. NICHOLSON, Treas.

Incorporated 1864.

Capital Stock, \$400,000.





106 and 108 Beekman St., New York, Manufacturer of

Dog Muzzles, Wire Clath and Netting, Moulder Riddies, Decoy Rat and Mouse Traps, Wiret Dish Covers, Flour and Meal Sieves, &c., &c.,

At the Lowest Prices.



NONESUCH Self Locking Burgiar Proof

B. KREISCHER & SON, New York Fire Brick & 85 STATEN ISLAND CLAY RETORT WORKS,

Established 1845. Office, foot of Houston Street, East Rever, NEW YORK.

The largest stock of Fire Brick of all shapes and see on hand, and made to order at short notice. is on hand, and made to order at short notice.

Cupels Brick, for McKenzle Patent,
others. Fire Mortar, Ground Brick, Clay and
d. Superior Kaolin for Rolling Mills and Found.
Stone Ware and other Fire Clay and Sard,
n my own mines at New Jersey and Saten Island,
the cargo or otherwise.

NEWTON & CO.,

PALMER, NEWTON & CO., ALBANY, N. V., Manufacturers of

FIRE BRICK Stove Linings,

Range and Heater Linings Cylinder Brick, &c., &c,

M. D. Valentine & Bro

FIRE BRICK **And Furnace Blocks** DRAIN PIPE & LAND TILE.

A. HALL & SONS, Perth Amboy, N. J. HALL & SONS, Buffale, N. Y.

Woodbridge, - - - N. J.

FIRE BRICK

of reliable quality for all purposes, manufactured o the best New Jersey Fire Clays. Also, Architectura Terra Cotta, Fire Clay, Fire Sand, Kaolin, Ground Fire Brick and Diamantine Bailding Brick.

Brooklyn Clay Retort

FIRE BRICK WORKS. ufacturers of Clay Retorts, Fire Bricks, Ga a and other Tile, Cupola Brick, &c. Dealers in liners of Fire Clay and Fire Sand. Clay bank at Creek, New Jersey, Manufactory: Van Dyke, etc. Richards and Partition Sts., Brooklyn, N. Y. No. 88 Van Dyke St.

Watson Fire Brick Manufactory

JOHN R. WATSON, Perth Amboy, New Jersey.

FIRE BRICK,

For Rolling Mills, Blast Furnaces. Foundries Gas Works, Lime Kilns, Tanneries, Boiler and Grate Setting, Glass Works, &c. FIRE CLAYS, FIRE SAND, AND KAOLIN FOR SALE

HENRY MAURER, Excelsior Fire Brick & Clay

Retort Works. BRICK AND CLAY RETORTS. WORKS | PERTH AMBOY, NEW JERSEY Office & Depot: 418 to 422 East 234 St., N. Y

TROY FIRE BRICK WORKS

JAMES OSTRANDER & SON,
ESTABLISHED 1848,
Manufacturers of

FIRE BRICK, Cuyeres, Tiles, Blast Furnace Blocks, etc. Miners and Coalers in Woodbridge Fire Clay and Sand, and Staten

Established 1864.

CARDNER BROTHERS STANDARD SAVACE

Fire Brick, Tile & Furnace Blocks, OF ALL SHAPES AND SIZES.

Clay Gas Retorts and Retort Settings,

Miners and Shippers of Fire Clay. OFFICE: 376 Penn Ave., Pittsburgh, Pa. Works: Mt. Savage Junction, Md., and Lockport, Pa

BORGNER & O'BRIEN,

Fire Bricks, Clay Gas Retorts.

> Retort Settings, Tiles, Blocks, &c., &c. 23d St., below Vine,

PHILADELPHIA Eighteen years' practical experience CYRUS BORGNER.

Crane & Chapuis, FELT MANUFACTURERS.

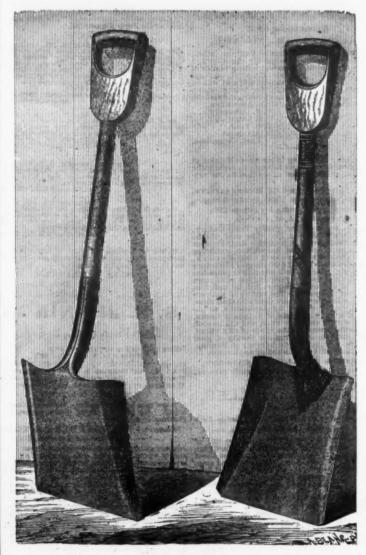
Polishing Felts of every description.

31 & 33 Courtlandt St., PATERSON, N. J.

E. S. DODGE

B. ROWLAND & CO.,

PHILADELPHIA.



THE

OXFORD PATENT WELDED Solid Cast Steel Shovel.

OIL TEMPERED.

The Oxford Patent Welded Solid Cast Steel Shovel, as now furnished by us, is a new article of manufacture, of a single plate of Cast Steel, without rivets, welded by the Antrim process, with smooth surfaces front and back, and with socket continued some distance up the handle, completely encircling it in the manner of a ferrule, thus insuring a perfectly straight handle in every instance, and securing the qualities of absolute perfection of strength, and the greatest beauty of construction possible. Taken altogether, our methods will be found to obviate all the defects now so patent in all other Shovels, even those of first-class manufacture, and we will guarantee for them superior strength in parts usually the weakest, perfect symmetry and regularity of appearance, and wearing quality one-third greater than those of any other now made.

The same will apply to our Oxford Patent Welded Solid Cast Steel Spade, Long Handle Round Point Shovel and D Handle Moulder Shovels in

OXFORD Warranted Cast Steel.

Goods of this stamp are made of the very best material, and are warranted. We will always replace them with new ones in every case where reasonable satisfaction is not given.

B. ROWLAND & CO.,

CITY OFFICE,

27 North Fifth Street, Philadelphia, U. S. A. Works at Frankford, Phila., U.S.A.

NEW YORK WAREHOUSE, 100 Chambers St.

MACOMBER, BIGELOW & DOWSE,

Nos. 156 and 164 Oliver St., Boston, Mass., NEW ENGLAND AGENTS.

THE PARIS EXPOSITION.

American Machinery.

(From our Special Correspondent at Paris).

The display of our machinery at Paris, judged either by our ability or by the show at previous exhibitions, is very small. Machine tools are almost entirely wanting. Neither Wm. Sellers & Co., whose exhibits were so attractive at Vienna in 1873 and at Paris in 1867, nor Bement nor Pratt & Whitney have a single piece of machinery in the exhibition. Brown & Sharpe Mfg. Co. have a number of their elegant metal-work-ing tools in Machinery Hall. Allen & Roeder of New York have a power riveting ma-chine, and Henry Devens, of Brattleboro', Vt., has an exceedingly good automatic screw-cutting machine. In addition to these the exhibits of Bliss & Williams of machines for working metals, and of J. A. Fay & Co. of wood-working machinery, are especially good and noticeable. While our exhibit is small, what is shown is in no way inferior to the exhibits in other sections. Some of it is, in fact, unquestionably superior to any other machinery of the same class in the ex-hibition, and is being rapidly sold to Euro-pean houses. This is a fact that is worthy of especial notice. The entire exhibit of Bliss & Williams is sold and duplicate orders Bliss & Williams is sold and duplicate orders taken in many instances, and not to colonial houses, but to the largest houses in Paris and other parts of France using the class of tools made by them. J. A. Fay & Co. have made large sales of their machinery, not to go to South America or Australia, but into the very best shops in England and Scotland, in France, Germany and Belgium. There is in the Exhibition a fine display of machinery for making rubber goods and for boot and shoe manufacture, but this hardly comes within the scope of our article.

We shall notice first the fine exhibit of

BLISS & WILLIAMS,

167 Plymouth street, Brooklyn. The ma-chines exhibited by this house for working tin plate and other metals are the only ones of the kind in the Exposition, and when they are in operation attract a crowd, not only of the curious, but of the interested as well. Samples of deep stamped ware in the American Department, and others in connection with the exhibits of certain manufacturers of tin plate in the English section, the stamping being done in America, have excited a good deal of surprise at their depth and smoothness and led to a desire to know more as to the method of manufacture, and this has led to the close inspection of the ma-chinery of this firm. The working is a complete surprise. Tin plate is manipulated in a way that manufacturers of machinery on this side have declared impossible, and as a this side have declared impossible, and as a result, Bliss & Williams have not only long ago sold every piece of machinery they have in the Exposition, but have duplicated orders for some of the machines several times. The machines whose operations are the most interesting are the No. 3 drawing press and No. 5 spinning lathe. A sheet of tin is fed to the first, from which it comes shaped as a pan. It is then passed to the lathe, in which the wrinkles are first smoothed, and then a lever is touched and the pan is trimmed. Reversing the movement, the pan is curved or braided and comes from this machine complete. The comes from this machine complete. The two operations require less than a quarter of a minute. These machines are sold to Japy a minute. These machines are sold to Japy & Co., the largest manufacturers of stamped goods in France. Another machine is their No. 2 incline power press for making fruit can tops and bottoms. This is a new machine in France. The top is cut, formed, and a cap for a smaller size can formed at one stroke of the press. This press is sold to the largest box and can manufacturers in this country. The cutting, drawing and stamping press for making blacking and other boxes is perhaps the most important one shown in some respects. This press has three distinct movements—one to cut the blanks, one to draw the articles and one to put the impression on the bottom when the plunger is nearly down. The working of this press is so different from the preconceived ideas of French and other manufacturers of this class of machines that they turers of this class of machines that they will not believe it when told, and will scarcely credit the evidence of their own senses. One of the most celebrated French builders of hand machinery for doing similar work had heard of it, and at once declared that it was impossible for it to do what was claimed, but his curiosity led him to see the no box or pan could be made in one operation.
While he was thus delivering himself the engine started. A blank was placed in position in the press, the treadle was touched, the machine did its work and the result was handed to him. The look of complete surprise struggled with an attempt to look pleased, and he left without saying a word. Later in the day he appeared and asked the attendant to let him appeared and asked the attendant to let him look at the machine with the wheel removed that he might see the operation of the clutch. The sardine box and cover ma-chines are very important to France. The box is made in one piece, the cutting, drawing, and stamping impression being done at one pass. This firm have patents in Europe on this machine, and arrangements have been made with one of the leading houses in France to manufacture on a royalty. Bliss & Williams are certainly deserving of a great deal of credit for their fine display, and for the especial characteristic of the tools, which is not only labor saving but time saving as well, and, above all, the com-

firm for accuracy of workmanship and fit ness for the purpose designed is so well known that words of praise for their exhibit seem useless. Though none of the tools are in operation, the beauty of their design, the skill in construction and the care in manufacture are very apparent. The universal milling machine is especially noteworthy for the excellence of its workmanship and its adaptation to every variety of work that adaptation to every variety of work that such a tool is ever called upon to perform. In addition to the more common kinds of plain surface milling, some of its applications may be enumerated as follows: Cutting of bevel and spur wheels, worm wheels and racks; milling of circular arcs and slots; squaring of both heads and nuts; fluting of tans, reamers, or cutting the teeth of taps, reamers, &c., cutting the teeth of mills, either straight or spiral; slotting of screw-heads; making of twist drills; drilling of holes on the periphery or face of plates; die-sinking, milling key-ways in spindles, &c.; proving, as its name indicates, a machine adapted for universal application to milling purposes. Their universal grinder is an exceedingly substantial and well-studied machine; its details are well arranged and the variety of work to which it is adapted is very great. Their grindstone tarning device is also worthy of notice as an arrangement for instantly and automatically doing one of the most disagreeable things of a workshop. Among the smaller tools in their exhibit must be named a large variety of milling machine cutters, which are so constructed as to admit of repeated sharpening without destroying the accuracy of the original cut-ting of their teeth. This is a very important peculiarity and deserving of especial notice. In the manufacture of small machinery many of the parts are of irregular outline, requiring expensive cutters to produce them. These cutters soon become dulled and then require to be annealed, recut and rehardened at a cost nearly equal to new ones, while the steel of which they are made suffers injury from reheating, by annealing and harden-ing. The Brown & Sharpe cutters can be sharpened by grinding without changing their form. The method by which they are made also admits of exact reproduction of form in duplicating cutters. The operation form in duplicating cutters. The operation of grinding can be repeated until the strength of the teeth becomes impaired, thus causing them to greatly outlast cutters produced in any other way. The entire exhibit is wery creditable to American ingenuity, and is an indisputable evidence of the high character of the work in this line was recombled. acter of the work in this line we are capable of producing.

J. A. FAY & CO.,

of Cincinnati, Ohio, make a very fine display of wood-working machinery, consisting of 15 machines, or 17, if certain double ma-chines are counted as two. This exhibit is chines are counted as two. This exhibit is not a reproduction of the tools shown at previous exhibitions, but is largely of new machines, seven of them having been brought out since the Philadelphia Exhibition two years ago. The exhibit includes some of the years ago. The exhibit includes some of the most comprehensive machines in the Exhibition, viewed in the light of the different operations executed. One of the most perfect examples of this is their Patent Universal Wood Worker. To show its range of work they make the following statement: "Among the other uses to which the machine can be applied we will mention chamfering. work they make the following statement:
"Among the other uses to which the machine
can be applied we will mention chamfering,
cornering of any description, rabbeting and
jointing window blinds, gaining either
straight or angular to any width or depth;
panel raising on one or both sides with
either square, bevel, ogee, cope or scotia
raise; tenoning, ripping, cross-cutting,
grooving, hand-matching, making glue
joints and table joints, mitering, nosing,
squaring up and a variety of other operations limited only by the skill and ingenuity
of the operator. Although each operation
demands a change of cutter and fence, this
is easily managed by means of a movable
bearing. The tables are so constructed that
when lowered they also fall away from the
cutter block, and all cutters in this, as in
every other machine, are fitted on the spindle is running. The two halves of the table
can be adjusted at different hights to suit
the operation in hand. The frame of the
machine is in one piece; the spindle carrying
the top cutter for the four-side molder and
that for working the 22 different operations
on the wood-working table are driven from
the same pulley with two belts, and can be on the wood-working table are driven from the same pulley with two belts, and can be used separately or simultaneously. Of course, as in all machines of this class, skilled labor is indispensable in setting up the tools for each operation; but when that press. It was not working when he first saw it, and he still was loud in his assertions that uniformity are adjusted, the accuracy of work it has decorated by the same that the same to be a substitution of the same to same the same to be a substitution of the same to same the same to be a substitution of the same to same the same that the same that same that same that same the same that same is less dependent on the ability of the attend-ant than on the machine itself. The spur wheels on the feed rollers are adjustable to suit three depths of molding, being placed in each case over that part subjected to the

deepest cut."

Another of the prominent features of their exhibit is their patent band saw, which is almost constantly in operation, attracting large crowds of curious spectators to watch the intricate and beautiful sawing done by it. This saw has a patent steel wheel, and has been designed so as to almost entirely prevent the breakage of saws, to economize covers and increase production. deepest cut. power and increase production. An impor-tant feature in the saw is the method of keeping it at its proper tension, allowing at the same time some flexibility to the parts to compensate for any sudden impact and prevent breakage of the saws by buck-ling or friction on the back or sides. Their band resawing machine is constructed to take stuff 16 inches square, and blades up to 4 inches in width. The feed motion is time saving as well, and, above all, the combining of several machines in one, doing the work perfectly and saving an immense deal of handling which all acquainted with machinery know to be one of the most useless as well as expensive parts of manufacturing.

BROWN & SHARPE MFG. CO.,

Providence, R. I. The display of this well-known firm consists of universal and plain milling machines, grinding, screw and tapping machines, reels, assorters, scales and testors for roving, and yarn for cotton and woolen manufacturers; cutters for gear wheels, taps, reamers, twist drills, &c. The high character of the manufactures of this

chucks are fitted, is cast in one piece, and fitted into bearings cast solidly to the column. The rollers are geared and driven from one balt, are easily adjusted to the required moved for define the stuff, and easily re-moved for different sizes. The receiving rollers can be turned out of the way when changing the chucks or clearing them of broken rods. It will turn from 15 to 25 feet per minute, and three sizes are made : No. 4, to work I inch and under; No. 5, to work I'm inch and under, and No. 6, to work 2 inches and under.

Stengel's dovetailing machine is one of the simplest and neatest machines in the Exhibition. It stands in a space not more than 2 x 2 feet, and will cut dovetails and pins simultaneously on any thickness of material up to 1¼ inch and 14 inches wide. The cutter spindles' frames are stationary, the material being placed on a vertical and horizontal plate, and held in position by cam rollers, the male part of the dovetail being cut on the piece on the horizontal table and the female mertise or dovetail cut on the piece held on the vertical table. The operation is represented by the movement of the ation is performed by the movement of the hand lever up and down, the slide moving forward at each alternate motion of the lever. The construction of the guides is lever. The construction of the gundes as such that, after the machine is started, it cannot be moved backward in the least, nor forward more than the one notch desired, it being an actual impossibility to spoil any material after the operation is properly com-menced. The cutter spindles revolve at meaced. The cutter spindles revolve at high speed in long bearings, and can be ad-justed laterally to suit the depth of the cut. The cutters are of the most simple kind, and The cutters are of the most simple kind, and provision is made to compensate for wear. This machine is capable of making any size or variety of dovetail, is thoroughly built, easily kept in order, not liable to disarrangement, and warranted in every particular. The main shaft driving all the machinery on this stand is worked from the transmission by one of Crane's patent Japanese paper belts, with, so far, a most satisfactory result. The belt in question had been at work for six months previous to being sent to the exsix months previous to being sent to the ex-hibition as a specimen, and was adopted by Mossrs. Fay & Co. to replace an ordinary leather one which was giving them trouble, and they are very well satisfied with it. It is, unfortunately, the only one of the kind at work in the building.

C. B. ROGERS & CO...

C. B. ROGERS & CO.,
of Norwich, Conn., and 109 Liberty street,
New York, exhibit three of their woodworking machines, a No. 1 band saw, No. 1
fret-scroll saw, and patent rod pin and
dowel machine. These are all in operation,
and, especially the band saw, attract considerable attention. This is a small size machine, which is light yet strong in its construction, and low in price, and is designed
to meet the wants of the many small manufacturers for a good yet cheap machine. It
is constructed entirely of iron and steel,
with the exception of the table, which is of
wood, glued in strips to prevent warping.
The wheels are 36 inches diameter, and have
surfaces of rubber. The top wheel adjusts
by a hand-wheel, to give proper tension to
the saw. It has the back guide for saw and
the table adjusts for beveled work. It is in
operation sawing various intricate shapes
cont of blocks of wood. operation sawing various intricate shapes out of blocks of wood. The fret saw is a cheaper machine for the same purpose. It is entirely new in design, and has improvements not heretofore used on scroll saws. The base of the machine is a firm angle casting appropriate lightness with ing, combining lightness with strength, having a wood top glued in strips. The strain having a wood top glued in strips. The strain is suspended by a post from above, with rods and turnbuckles to adjust in line. The strain consists of a light iron frame, adjustable for varying lengths of saws, having at either side a hard wood spring, with adjustable tension connected by straps with the saw. In operation the springs have but one-half inch throw to four inches stroke of saw, thus allowing a very rapid motion. The saw thus allowing a very rapid motion. The saw is held by a simple hook and pin at each end, allowing almost instant detachment for allowing almost instant detachment for changing saw, or for working inside scrolls and circles. The back of saw is steadied by a guide which adjusts to hold down work. The belt is shifted by a foot lever, which also acts on a brake, stopping the saw instantly when required. The tight and loose pulleys are 7 inches diameter, 2½ inches face, and should make 1200 to 1400 revolutions. and should make 1200 to 1400 revolutions. The patent rod pin and dowel machine is entirely new. It will turn rods from 4 inch r nerfectly true, either of pine or hard wood. The machine is self-feeding, without any rolls or attachment of any kind, the cutters being arranged in the head in such a manner as to feed the stuff in as fast as it can be worked, feed the stuff in as fast as it can be worked, without any pushing by the operator. The machine should make 3000 revolutions per minute. These machines are but a very small part of the extensive line of woodworking machinery made by this firm and for which they have so often received medals. The impossibility of getting space prevented a more extensive exhibit. THE NORTHAMPTON EMERY WHEEL CO.

Leeds, Mass., exhibit both wheels and ma-Leeds, Mass., exhibit both wheels and machines for sharpening and grinding, the latter in operation. The number and variety of wheels exhibited are very large. The sizes are from five-sixteenths of an inch to 24 inches diameter, intended for sharpening saws, planer knives, molding bits for foundries and machine shops, for grinding brass, iron, steel and glass for jewelers' use, &c. The claims made for their solid emery wheels, and which it is asserted are essential to a good article, are strength, rapidity of also assert that they emit no disagreeable smell under any circumstances, will not warp or crack under any conditions of the atmosphere, and will work equally well with or without water. On account of their limited space, this company show but four of their large variety of machines—one of their No. 2½ machines, with planes have the space of the limited spaces, with planes and the space and Agricultural Implements, with a good established trade, both wholesale and retail, in a thriving Western city. Reason for sell-strely under the particulars, address of the row Age, 83 Reade St., New York.

For Sale, alrage variety of machines—one of their No. 2½ machines, with planer knife and saw-sharpening attachments for wood-working shops; an automatic knife grinder for sharpening planer knives, or any knife hav ing a long straight edge; one large machin

tirely new design and pattern. It is mounted on a column, the counter-shaft being directly under the pulley and chuck, the driving pulley being in the center and entirely out of the way. The arbor, through which the sticks are fed, and into which the well as the others is in operation, seems to well as the others is in operation, seems to eter for foundry use, and a stove-plate dressing machine for grinding out the pot holes, dressing and polishing the edges of stove plate. The latter machine, which as well as the others is in operation, seems to do its work rapidly and effectively. For their automatic knife-grinding machine and saw sharpener they claim many advantages over the old style, as being different in principle and mode of operation and overcoming effectually serious inherent defects in other

machines. In their circular they say:

"On all the old machines the knife is ground by the periphery of the wheel, or stone, hence the beveled edge of the blade must necessarily be concave, and in shape exactly the reverse of a segment of the wheel of like width; and as the wheel diminishes in size by use, the knife edge is ground more and more concave until the wheel bemore and more concave until the wheel be-comes too small for the work and a new one is substituted, after which, at the first grinding, each knife is changed back to the shape it had when the former wheel was new, to again go through a like process of change as the new one wears away, using up the blade much faster than if it were

ept of a uniform shape.

'The wheel used on this machine is in the form of a hollow cylinder or shell, and the grinding being done on its edge, it simply be-comes shorter by use without decreasing in diameter. The diameter being but 9 inches, it is much cheaper and more convenient to handle than the wheels used in the old way, which must necessarily be 20 inches or mor in diameter, and correspondingly heavy and

expensive.

The shape of a knife ground on the old style of machine is not under the control of style of machine is not under the control of the operator, but depends entirely on the size of the wheel used. This machine can be set so as to grind a perfectly flat or a con-cave bevel as may be desired, and when set will continue to grind all knives to a uniform shape until it is changed.

"The gauges for setting the knife by its edge, and that by which the knife-holder can always be returned to the same position.

edge, and that by which the knife-holder can always be returned to the same position after having been loosened, thereby insuring perfect uniformity of shape, are peculiar to this machine and are patented. Setting the knife in the machine is not a matter of guesswork dependent on the judgment of the operator, but of mechanical accuracy provided in the machine itself."

A saw grinding attachment by which saws can be kept in perfect order without the use of files can also be attached to this machine. or mes can also be attached to this machine. The usual size is to sharpen knives 26 inches long, but larger sizes can be furnished.

Under the name of Henry Devens, of Brattleboro', Vt., a very interesting

AUTOMATIC SCREW-CUTTING MACHINE automatic screw-cutting machine is exhibited. The machine is perfectly automatic in its operations, the wire being fed from a rod and the completed screw delivered at the other end of the machine. As the wire is fed the first operation turns the shank and head and then continuously points the screw, cuts the thread, cuts the screw from the year approach the head sleet for from the rod, rounds the head slots, &c. A screw driver then removes it from the die. after which it is taken to a finisher, which finishes the head and drops it a completed screw. The machine, with the exception of the room for the feeding of the rod, takes up about a yard square of floor space. It has a capacity of two and a half 1/2 x 1/4 foot head capacity of two and a half \(\frac{5}{8} \times \frac{1}{3} \) foot head screws per minute, and one man can attend to twelve machines. The only machines of this style in operation are six at the works of the Wheeler & Wilson Sewing Machine Co. at Bridgeport, Conn., who express themselves perfectly satisfied with its operations. The machine exhibited has a range of work from No. 4 to No. 12 and from 13-16 long down. Mr. F. Curtis, of Brattleboro', is the inventor. inventor.
We shall continue our notes on American

achinery in a future issue.

The Royal Academy of Sciences at Rome has elected as a foreign member of that institution Prof. F. V. Hayden, United States geologist, who has for several years had charge of the geological surveys of the Territories. He is already a member of 33 scientific associations.

Special Notices.

THE UNDERSIGNED HAS OPENED AN OFfice at 90 Chambers street, New York, for the sale of goods of his manufacture, comprising Leather and Chain Dog Collars, Muzzles, Book and Shawl Straps, and Leather Goods of all kinds. His facilities are such as to enable him to fill all orders with promptness. He has also made an arrangement with Fernald & Sise, 100 Chambers street, to represent him when traveling, and empowers them to fill any orders at his lowest prices.

Late with Union Hardware Co.

WANTED,

In every city in the United States, a responsible and well-known party to represent us.

PHILADELPHIA HYDRAULIC WORKS.

Philadelphia, Pa. Cor. Evelina & Levant, near 3d & Spruce Sts.

For Sale.

Valuable Manufacturing Property.

Foundry and Machine Shop capable of producing the heaviest work. Large yard room, a good wharf and railroad connection by spur track. Situ-ated at South Norwalk, Conn. Terms reasonable. E. HILL, Trustee.

For Sale.

A new, clean stock of Iron, Heavy Hardware, Wagon Wood Stock and Agricultural Implements

town, within about 100 miles of New York. Can probably be bought at a great bargain. P. R. L.

Box 1118, New York P. O.

Special Notices.

OFFICE OF

The Table Cutlery Manufacturers' ASSOCIATION

OF THE UNITED STATES.

Comprising Beaver Falls Cutlery Co., Landers, Frary & Clark, John Rus-sell Cutlery Co., Meriden Cutlery Co., Lamson & Goodnow Mfg. Co., American Cutlery Co.

TO THE TRADE.

This Association will offer for sale, WITHOUT RESERVE, through

Messrs. BISSELL & WELLES. Auctioneers

At 83 Chambers St., New York,

Their entire stock of Discarded Patterns, which will include all goods not regularly classified and priced by the Association, to which the attention of buyers is solicited. All goods offered will be FIRST QUALITY. All purchases made at this sale will be allowed to apply on quantity for season ending December 31, 2878, but will not be subject to rebate or cash discount. By order of the Association.

R. N. OARMAN, JR.,

NEW YORK, July 5th, 1878.

GENTLEMEN: Referring to the above circular of the Cutlery Association, we hereby announce to the Trade that we will offer at auction at our new

No. 83 Chambers and 65 Reade Streets, ely occupied by Messrs. Walsh, Coulter & Fingler On Wednesday and Thursday, July 24th and 25th, At 10 o'clock, A. M., for Cash,

At 10 o'clock, A. M., for Cash, over \$75,000 worth of first quality Table Cutiery, Carvers. Butcher Krives. &c. The sale will be PEREMPTORY, and will comprise large invoices from each member of the Association, consisting in part of about 6000 gross Table Cutlery, 6000 pairs Carvers, 1500 dozen Butcher Knives, &c. The sale will be made in quantites to suit large and small buyers, and the well-known character of the manufacturers will be sufficient guarantee of the quality. The variety of patterns and styles will be much more desirable than those offered at the last sale of the Association, as the present offering will consist of Standard Goods, ALL MADE WITCH THE PAST YEAR, and will be such as to meet the demand of the Trade of all sections. This sale will be in every respect worthy of your attendance. Catalogues will be ready on Monday, July 15th, and will be furnished on application.

BISSELL & WELLES, Auctioneers,
83 Chambers and 65 Reade Streets.

BISSELL & WELLES, Auctioneers

Continuation of Trade Sale of Cutlery, Fri-

day, July 96th, at 10 o'clock, a. m. day, July 26th, at 10 o'clock, a. m.

We will include in Friday's sale a large line of Pocket Cutlery, Silver Plated Ware, Hardware and French Tin'd Ware, comprising in part about \$8_2\$ dox. Pocket Knives, bone, shell, pearl and stag, fine and standard goods; 300 dox. Cast Steel Scisors; 200 dox. American Shears, 18t quality; 500 dox. Silver-Plated Toa and Table Spoons and Forks, standard plate; 50 dox. Bowie Kinves; 300 gro. Tin'd Iron and Silver Steel Tea and Table Spoons; 700 gro. Tin'd Iron and Silver Steel Tea and Table Spoons; 50 gro. Solid Steel Tea Spoons, plated.

Also 30 dox. Patent Bit Braces, 40 dox. Steel Squares, 100 gro. Motal Head Gimleta.

Also large line Nickel-Flated, French, Tin'd and Enameled Ware, all first quality.

Together with a very large assortment of French Tin'd and Enameled Ware, prime 3d and of superior manufacture, &c., &c.

Second - Hand Machinery For Sale Low.

SEND FOR LIST.

Engine Lathe, built by Seth Wilmarth, & in. swing, 33 ft. bed, live spindle hollow, face plate both ends, one at front 6 ft. 4 in. diameter, one at rear 7 ft. 1½ in. diameter, two boring bars traversed by tail spindle, both arranged for splining key ways; one of these bars is designed for work on rear face plate and has yoke to support outer end; on either face plate work may be bored, turned and splined without removing the fastenings. At rear face plate an adjustable bed 1x feet long, carrying an adjustable lool rest, the latter having 3 ft. 6 in. traverse, arranged to sit at any angle and in any position on above bed. Tail spindle is 5½ in. square, carriage is fed by a screw the full length of bed, cross feed automatic, 6 grades of feed to operate either, 10 grades of speed for live spindle, driving movement gears direct to front face plate, complete with counter-shaft for driving, splining and feeding. One large saddie or center rest. for live spindle, driving movement gears direct to front face plate, complete with counter-shaft for driving, splining and feeding. One large saddle or center rest.

Planer, built by W. Collier & Co., Salford, Eng., planes 34 in. wide, 48 in. high, 18 ft. long, automatic cross, vertical and angular feed, platen driven by gearing into step rack, return motion about 3 to 1; has third upright with vertical tool slider, automatic feed, to plane work that will not pass between the regular uprights. This slider has a vertical movement of 5 ft. 4 in. Countershaft.

HOLYOKE MACHINE CO.

JULY LIST, No. 2

MACHINE TOOLS,

Second-Hand.

Two Woodruff & Beach Steam Engines, auto-omatic cut-off, cylinder, so inch diameter, 48 inch

One Fishkill Landing Machine Co. 16 in. x36 Heriontal Steam Engine, with slide valve and cut-off

One Fishkill Landing Machine Co. 16 in.x36 Herizontal Steam Engine, with slide valve and cut-off One Portable Engine, 7 in. cylinder.
One No. 3 Stiles Geared Press.
One No. 3 Fowler Press.
One No. 3 Fowler Press.
One Crank Planer.
One Sool b. Drop Hammer.
One Sellers soo b. Steam Hammer.
One Sellers soo b. Steam Hammer.
One Hand Milling Machine.
One "Pond" Index Milling Machine.
Three Chase Patent Pipe Cutting Machines.
Two Engine Lathes, 12 in. swing, 6 ft. bed.
One Engine Lathes, 12 in. swing, 8 ft. bed.
One Engine Lathe, 76 in. swing, 36 ft. bed.
One Engine Lathe, 15 in. swing, 7 ft. bed. One Engine Lathes, 12 in. swing, 16 ft. bed.
One Engine Lathe, 15 in. swing, 7 ft. bed. One Engine Lathes, 15 in. swing, 16 ft. bed. Three Engine Lathes, 25 in. swing, 16 ft. bed. Three Engine Lathes, 25 in. swing, 16 ft. bed. Three Lathes, 25 in. swing, 16 ft. bed. Three Cone 3 in. Shaper.
One Gear Cutter. One new "Hardaway" Bolt Heading Machine, to head up to 1/4 in. bolts. A lot of Saw Tables and Wood Working Machinery.
Please specify which of the above tools you want and we will forward all particulars.
The above tools will be sold very low, and can be seen at

Special Notices.

JENNINGS'S

COMBINATION DISCOUNT TABLES

(Published by the author.)

OPINIONS.

OPINIONS.

NEW ALBANY, IND., April 23, 1878.

Mr. S. H. Jennings: Dean Sir.—Please let us know life we can procure "Jennings's Combination Discount Tables" in any city near here. We wish to examine it previous to purchasing. If you would like to send it C. O. D., you paying charges, with prillege of examination before taking, you may send one.

Terstedge, Cohmann & Co.,
National Stove Works.

Mr. S. H. Jonnings: DEAR SIR.—Your Book received by mail. We like the Tables very much. Enclosed find three dollars. Please acknowledge receipt. Yours truly. TERSTEGGE, GOHMANN & CO.

Nichols, Tioga Co., N. Y., May c. 1876. I am very much pleased with the Tables. They are great saving of time and labor, and I take pleasure n recommending them to others. ALEXANDER A. SWINTON.

We use the Tables in making out invoices and find them accurate and useful, and would recommend them to parties who have many discounts to make and who wish to find the same quickly.

ROCKFORD BOLT WORKS.

It will be mailed, postpaid, to any address, or receipt of the price, \$3. Currency may be sent by mail at my risk. Address

S. H. JENNINGS,

Deep River, Conn

S. H. JENNINGS.

Deep River, Conn., U. S. A.,

Offers his services to parties in any FOREIGN COUN'I'RY except Great Britain, who may desire to establish, build up, or increase a trade in American Hardware, Agricultural Implements, Machinery, and Miscellaneous Goods, as EXPORT FACTOR,

at a low rate of commission. Correspondence so-licited. He has had three years' experience as Purchasing Agent for

licited. He has had three years' experience as Purchasing Agent for Messrs. WM. MARPLES & SONS, Sheffield and London, England, Jobbers doing business throughout Great Britain, and to whom he would with pleasure refer. By arrangement with them he will represent no other firm having a house or branch house in Great Britain, which includes England, Ireland, Scotland and Wales. He buys direct from manufacturers, and only for export, thus securing lowest possible prices. He will attend to all matters this side of the water, including Purchases, Shipments, Remittances, &c., and has facilities in New York City for securing prompt shipments at most favorable rates of freight. Manufacturers of goods suitable for Foreign Trade are invited to send in their circulars or catalogues, and quote "hard pan" prices for export, which will be considered confidential.

Second-Hand Machinery.

One 14 in. T30 in. Whitehill & Smith Adj. Cut-off Engine, Wheel 10 ft. diam., and
One 54 in. x16 ft. Tub'r Boiler for same; both almost

One 25 in.x14 in. Fishkill Landing Engine, and One 48 in.x14 ft. Tub'r Boiler for same. One to in.x24 in. Harris Corliss Engine, with Boiler, Pump and Heater, never run, price very low. One 26 in.x174 ft. Engine Lashe, Rod and Cross Feed. One 22 in.x16 ft. Engine Lashe, Pond; all improvements. Two 1; in. Fratt & Whitney Engine Lathes, with Taper Attachment. One Lincoln Gear Cutter, nearly new. Two Lincoln Milling Machines. Four Brainard Milling Machines. Four Brainard Milling Machines. One each 1, 2, 3 and 4, spindle Drills, Fratt & Whitney. One No. 6 Root Blower. One 85, ib. Merrill Drop Hammer, good as new. 70 feet 22 in Double belt. 35 ft. 10 in. Double Belt.

E. P. BULLARD, 14 Dey St., New York.

J. H. JENKS & CO., **Manufacturing Machinists**

180 Centre Street, New York,

are prepared, with a superior equipment of first-class tools and experienced mechanics, to contract for the designing and construction of special TOOLS, DIES, JIGS and GAUGES for duplicating interchangeable parts of fine machinery or aheet metal goods. Contracts for manufacturing staple goods in quantity solicited.

Eighty Bushels of Charcoal,

with a net profit of \$7 per cord of wood, can be obtained by using the new apparatus patented in the United States, France, &c. The sawings effected by this process amount to enough in one year's time to pay for all necessary material required to carry on the operation. The patentee has had 17 years's apperlence and can give good references. Falents for sale.

CHARCOAL WOODLAND,

MILLET & BILGER, **Auctioneers and Commission Merchants**

112 Chambers St., New York,

Solicit from manufacturers, importers and jobbes consignments of Hardware, Cutlery, House Furnish ing Goods, &c., &c., for their regular weekly sales. C. A. MILLET, formerly of formerly of States, Willow, R. T. Haizell & Co. ery, House Furnish-ar weekly sales.
J. M. BILGER,
formerly of
R. T. Haizell & Co

HARDWARE BUSINESS FOR SALE.

In one of the most thriving towns in Pennsylvania about 75 miles from Philadelphia, a well selected stock of Hardware of about \$15,000 and doing a retail cash business of \$75,000, is offered for sale on low and easy terms. Wishing to retire from business reason for selling. Address,

Office of The Iron Age, 220 S. 4th St., Philadelphia

SPECIAL NOTICE. The undersigned offer their services as agents to

American Producers of Metals. They represent foreign brands of Zinc, Russia Iron, Hoop Iron, Window Glass, Cutlery and Guns.

LOUIS WINDMULLER & ROELKER, 20 Reads Street, N. Y.

BOOKKEEPER AND ACCOUNTANT.

Working Machinery.

Please specify which of the above tools you want and we will forward all particulars.

The above tools will be sold very low, and can be seen at

The George Place Machinery Agency,

131 Chambers and 103 Reade Sts., N. T.

Special Notices.

W. GARNER, General Merchant,

Mouldsworth, near Chester, England,

Supplies nearly every class of Goods.

including all kinds of

Agricultural Machinery, Domestic Machines.

SEWING MACHINES

And Artificial Manures.

W. GARNER is open to represent any Foreign Manufacturers in England for the sale of their manufactures of whatever nature or kind. Having a wide and well established connection in the Provinces, could introduce some American, German and French products to mutual advantage.

W. GARMER is also open to buy any kind of Goods on commission, and ship them to any part of the world. Manufacturers or others desiring his as-sistance will please address (with full particulars in English) as above.

To Manufacturers and Jobbers of Hardware, Cutlery, &c.

Manufacturers and Jobbers, having surplus stocks or goods that from any cause are unsale-able upon which they wish to realize, or assignees who have stocks to dispose of, will find a each purchaser by communicating with.

W. M. CALDWELL,

Job and Auction Lots of Hardware, Cutlery, &c.,
103 Chambers St., New York.

AUSTRALIA.

AMERICAN HARDWARE CO., AUSTRALIA,

Solicit correspondence with American manufac-turers desirous of representation in the Australian Colonies. Consignments will have prompt atten-tion. References furnished.

General Hardware.

Half Leather, \$10.00. Full Leather, \$12.00.

POCKET EDITION

Just Out.

Fine Leather Binding, \$5.00. Send for circular.

Buell Lamberson,

97 Chambers St., N. Y.

For Sale. Large Punch and Shears, 13,000 lbs., will punch 42 in. to center; two small Punches and Shears; 150,26 fees Planer; Lathes, Drills and Machinists' Tools of as sizes; a large lot of Architectural Ironwork Toolse Wood-working Machinery; Tanks of all sizes; Bydraulic Presses; Steam Engines and Bollers of any size, from 5 to 500 borse power, and Pumps of all sizes and makes at less than one-half cost and as good as new.

JOHN CARROLL.

266, 268 and 270 Front, near Roosevelt St., New York.

WANTED,—A SITUATION AS TRAVELING Salesman in the Iron, Steel or Metal trade. Have an extensive acquaintance with manufacturers, machinists, &c., throughout the United States. Can give first-class references, having had nine years experience as salesman. Salary expected moderate. Address A.F. W.,

The Sherman Process Co.

9 Pemberton Square, Boston, Mass., Issue Licenses to use the Process for the Manufacture of Iron and Steel

mer Converter, Crucible, Sieme In the Bessemer Converter, Crucible, Siemens-Martin, Puddling, Blast and Cupola Furnaces. The use of this Process improves the quality of the product, saves fuel and labor, and does not re-quire any change in furnace or manner of working. See page 17 of The Iron Age of Oct. 25th, 1377.

Wanted-A Partner.

In a foundry and machine business, already well esablished. Locality splendid and healthy. A practical man with means is wanted to join a practical man who is already well establish CAR WHEEL FOUNDRY, P. O. Box 134, Selma, Alabo

HARDWARE BUSINESS FOR SALE.

Rare chance to purchase stock of a well-estabished business in central Illinois. Stock will invoice about \$6,000. The best of reasons given for selling. Address "HARDWARE," Office of The Iron Age, 83 Reade St., N. Y.

DROP FORGINGS.

The TRENTON VISE & Tool. Works, Trenton, N. J., having increased their facilities, are now able to do all kinds of

Iron and Steel Drop Forgings in quantities to order at reasonable rates.

HERMANN BOKER & CO., Proprietors, 101 & 103 Duane St., N. Y. WANTED.—A first-class business man familiar with machinery and manufacturing, capable of handling large bodies of men, desires a responsible position. References satisfactory. Address, IRON AND STEEL,

Trade Report.

Office of The Iron Age, WEDNESDAY EVENING, July 17, 1878.

The past week has been uneventful in financial circles and very dull in the gen-eral markets. Money continues very easy and will probably continue so for some weeks. The rate to borrowers on call is 1 @ 2 %. Business paper is quoted at 3 @ 4 % for prime. Any mercantile paper not strictly "gilt edged" is very difficult to negotiate.

The gold market has ceased to have much interest since the premium fluctuations have been confined to oscillations between 1/2 and All quotations during the week have been at these figures.

Government bonds have been strong and active at higher prices. The popular subscription to the 4 per cents. continues large, and the process of their sale has enabled the Treasury Department to call \$5,000,000 more of 5-20 6 per cents. for redemption. State bonds are steady with the exception of Louisiana Consols, which are strong Railway mortgages are strong, but somewhat irregular. We give below the quotations of governments.

The weekly statement of the New York banks shows a gain in the total reserve of \$3,578,600, made up of a gain of \$1,628,-600 specie and \$1,950,000 legal tender notes. The surplus reserve is now \$23,252,025, against \$20,572,125 last week, and \$20,424,-The following is a compari-025 last year. son of the bank averages for the last two

The foreign trade movements for the week are shown in the following tables:

For week ended July 13:

1876. 1877. 1878.

Total for week. \$5,371,584 \$6,764,395 \$4,115,046

Prev. reported. 159,523,757 176,594,040 148,722,827 Hince Jan. 1 \$164.805.341 \$182.358.435 \$152.827.873 Included in the imports of general merchandise were articles valued as follows:

	Quantity.	value.
Anvils	76	\$740
Brass goods	6	964
Bronses	10	2,430
Chains and anchors		1,260
Copper		120
Cutlery	IOI	35,308
Guns	53	10,448
Hardware		1,344
Iron ore, tons		3,454
Iron, sheet, tons	59	9,924
Iron tubes	72	91
Iron cre, tons	300	574
Iron, other, tons	310	9.573
Metal goods		13,939
Nails	30	Bo
Needles		4,624
Nickel		800
Platina		3,330
Per, caps		1,320
Baddlery		356
Steel	700	6,843
Silverware		216
Tin, bxs		148,100
Wire		4.110
EXPORTS, EXCLUSIVE O		41-00
The mark and d Tales of		

For week ended July 16: 1876, 1877. 1878. For the week... \$5,832,961 \$5,154,447 \$5,413,092 Prev. reported.. 132,950,538 138,968,430 177,162,596 Since Jan. x....\$x38,783,499 \$x44,122,877 \$x82,575,688

For week ended July 13:

Total for the week..... Previously reported..... otal since Jan. 1, 1878. me time in 1877. me time in 1876. me time in 1875. \$8,814,580

Same time in 1875		58,800,511
Same time in 1874		31,430,141
Same time in 1875. Same time in 1874. Same time in 1873. Same time in 1822.	****	35,941,825
Classic Miles Miles and Albert	11	4411431011
Government bonds close as fo	пом	8:
	Bid.	Asked.
U. S. Currency 6's U. S. 6's 1881 registered	20%	120 1/2 107 1/2 107 1/2 102 1/2 106 1/2
U. S. 6's 1881 registered	0736	107%
U. S. 6's 1881 coupon	0738	107%
U. 8. 6's 1865 new reg	02%	102%
U. 8. 6's 1865 cou	08%	10234
U. 8. 6's 1867 reg	0078	100%
TT Q 61a -968 pag	00	100%
II 8 6's 1868 con	0874	108 109 M 109 M 109 M 106 M 104 M 104 M
U. S. 10-40 PSF	10034	100%
U. S. 10-40 coupon	00%	100%
U. S. s's 1881 registered	06	106%
U. S. 5'8 1881 coupon	07%	1073
U. S. 416's 1891 registered	04%	104%
U. S. 41/2's 1891 coupon	04%	1045
U. 8, 4's 1907 registered	00%	100%
U. B. 6's 1867 reg	00%	100%
The following were the closin	g qu	uotatione
of active shares:		
Adams of David - Malana		
Atlantic and Pacific Telegraph. Chicago and Northwest. Pref. Chicago, Rock Island and Pacific. Chicago, Bur. and Quincy. Col., Chicago and Ind. Central. Clev. Col., Cin. and Ind. Cleveland and Pittsburgh. Ohicago and Alton.	27%	29
Chicago and Northwest	5091	5034
Chicago Rock Island and Pacific	777	77%
Chicago, Bur and Quincy	11479	11234
Col., Chicago and Ind. Central.	- 4	434
Clev., Col., Cin. and Ind	25%	26
Cleveland and Pittsburgh	8931	833/
Ohicago and Alton	. Bo5	6 B1
" Pref	103	
Canton	×524	1834
Delaware, Lack, and Western	603	
Delaware and Hudson Canal	5856	583
Express Adams	10479	305
" United States	4775	4834
" United States Wells, Fargo & Co	07.4	93
Erie	15%	16
Harlem	139	140%
Hannibal and St. Joseph	1116	12
Erie Harlem Hannibal and St. Joseph Dinnis Central Pref	27%	28
Kansas Pacific	80	8634
Kansas racinc	5,74	534
Lake Shore	601	6834
Michigan Central	6234	67%
Morris and Essex	8434	85
Milwaukee and St. Paul	5051	5034
" " Pref	8234	8234
New York Central	209	109%
New Jersey Central	40%	109 41 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Ohio and Wieslerings	13/1	1 136
Pacific Mail	771	7%
Panama	3776	177
Pittaburgh and Fort Wayne	0414	387
Kansas Pacific Kansas and Texas Lake Shore Michigan Central Morris and Essex. Milwaukee and St. Paul New York Central New Jersey Central New Jersey Southern Ohio and Mississippi Pacific Mail Panaina Pitisburgh and Fort Wayne Quicksilver.	136	95 15
Pref	22	24
St. L. and Iron Mouutain. St. Louis Kansas City Northern.	5	33
St. Louis Kansas City Northern.	434	434

Toledo, Wabash & Western. Jaion Pacific. Western Union Telegraph...

GENERAL HARDWARE.

We hear of a slight improvement in the demand for goods, and some travelers who have started on their fall journey are being heard from with satisfactory memorandums considering the season.

The manufacturers of Brass Butts held a meeting at New Haven, Conn., yesterday, at which the price of these goods was advanced to discount to per cent.

The demand for Nails is seasonably fair. The condition of the market in the matter of prices is unchanged, and we quote as before: 10d to 60d, \$2.30, net, in a small way. For orders of 50 kegs and over this price would be shaded.

Mallory, Wheeler & Co. have just issued a revised price list of their Door Locks. Knobs, Pad Locks, &c., in which they illustrate and describe all the new goods added to their assortment since the publication of their 1876 catalogue. The condensed prices show some changes, among which we notice important reductions in their Alphabet Locks, the new list of which is as follows: No. A, \$1.75; D, \$2; E, \$1 25; F, \$1.50; G, \$1.25; H, \$1.50; J, \$1.75; K, 80 cents per dozen. We also notice that a number of Locks formerly made with the ordinary key are now furnished with the thin bit key. The discounts on all of their goods remain as before, Sargent & Co. are their agents in this city.

Hotchkiss' Sons, Bridgeport, Conn., have issued an illustrated catalogue in which they show a great variety of their new styles of Curry Combs. Their other specialties are also handsomely shown, among which are Mouse Traps, Game Traps, Carpet Stretchers, Ox Bow Pins, Bull Rings, Cattle Leaders, Breast Drills, Saw Sets, Bench Hooks, Spoke Shaves, Pruning Shears, &c.

The Shepard Hardware Company illustrate in their advertisement on the 3d page the Shepard Hand Fluter, which is a well-finished article at a very low price. They inform us that they have recently enlarged their facilities for the manufacture of these Fluters and they are now prepared to fill all orders intrusted to their care.

Hermann Boker & Co., Nos. 101 and 103 Duane street, have issued under date of 15th inst. a revised price list of R. Heinisch's Sons' Shears and Scissors, for which they are sole agents. We print below the complete lists of the R. Heinisch and R. H. S. brands. All the prices given are for Japanned handles, and for Nickel plated handles and Nickel plated handles and blades a blight advance on the net price of Japanned is charged. They invite the attention of the trade to their new pattern Ladies' Scissors, in both R. Heinisch and R. H. S. grades. The regular trade discount is: off R. Heinisch brands 50 per cent. and R. H. S. brand discount 65 per cent. An examination of the list and discounts shows important reductions in the R. Heinisch brand.

PRICE LIST -B MEDVISOR'S SOME

	HEINISCH'S SONS.
R. Heinisc	
Tailors' Shears.	Per doz.
No 4 22% in	No. 2, 11½ 30.00
Per pair. No. 4, 123/4 in \$5.00 No. 5, 13 8.00	No. 4. 13 36.00
NO. 4, 13/2 im. 9, 00 NO. 5, 13/3 8, 00 NO. 6, 13/4 9, 00 NO. 7, 14 11, 00 NO. 8, 14/4 11, 00 NO. 10, 15/4 12, 00 NO. 11, 15/2 14, 00 NO. 12, 16/4 15, 00 Long-Bladed Custom Cutters' Shears. NO. 1, 14/4 in. \$22,00	No. 2, 11½ 30.00 No. 3, 12 33.00 No. 4, 13 36.00 Tallors' Points.
No. 7, 14 10,00	No. 0, 5 in
No. 9, 14% 12,00	No. 2, 6
No. 10, 15% 13.00	Pocket Scissors.
No. 11, 15% 14.00	No. 0, 4 in\$12.00 No. 1, 4¼ 12.00 No. 2, 5 12.00
Long-Bladed Custom	No. 2, 5
Cutters' Shears.	No. 2, 5 12.00 No. 2, 5 12.00 Barbers' Scissors. Lipped. No. 2-0, 7½ in \$16.00 No. 0, 8½ 18.00 No. 1, 9 21,00
No. 1, 14% in\$12.00 No. 2, 15% 13.00 Tailors' Shears.	370 1/2- A
Tailors' Shears.	NO. 0. 84/
Left Handles. Right	No. 1, 9 21.00
	No. 2, 9% 21.00
No. 8, 1434 12.00	Plain
No. 5, 12/2 in \$8.00 No. 8, 14/4 12.00 No. 9, 14/4 13 00 No. 11, 15/4 15.00 Tailors' Shears.	No. 2-5, 75; iii
No. 11, 1534 15.00	Bankers' or Paper
Left Handles, Left	
Tailors' Shears. Left Handles. Left Blades. No. 7, 14 in	With Trimmer Handles. No. 1, 11 in. \$24.00 No. 2, 12 30.00 No. 3, 13 36.00 No. 4, 14 42.00 No. 5, 15 48.00 No. 6, 16 54.00 No. 7, 17 66.00 No. 8, 18 78.00 Bankers' or Paper
No. 7, 14 in\$14.00	No. 2, 12 30,00
No. 11, 15% 18.00	No. 4, 14
Ladies Scissors.	No. 5, 15 48.00
Per doz.	No. 6, 16 54.00
No. 0, 5 in\$12.00 No. 2-0, 5½ 12.00 No. 1, 6 12.00	No. 6, 16 54.00 No. 7, 17 66.00 No. 8, 18 78.00 Bankers' or Paper Shears. With Ring Handles. No. 1, 8 in. \$15.00 No. 8, 9 18.00 No. 3, 10 21.00 No. 4, 11 24.00 No. 5, 12 33.00 No. 7, 14 42.00 No. 8, 15 48.00 No. 9, 14 42.00 No. 9, 14 42.00 No. 9, 15 18.00 No. 100, 5 18.00 No. 100, 5 18.00 No. 100, 5 18.00 No. 100, 5 18.00 No. 100, 6 13.00 No. 100, 7 14.00 Errs. \$15.00
No. 1, 6 12.00	Bankers' or Paper
No. 2, 6½ 15.00	Shears.
Straight Trimmers	No. r. 8 in Syrce
No. 1/4, 6 in\$12.00	No. s, 9 18.00
No. 0, 61/2 13.00	No. 3, 10 21.00
No. 2-0, 7 15.00 No. 2-0, 736 18.00	NO. 4, 11 24.00
No. 4-0, 8 19.50	No. 6, 13 36.00
No. 1, 81/2 21.00	No. 7, 14 42.00
No. 2, 10 27.00	New Pattern Ladies'
No. 4, 11 30,00	Scissors.
No. 5, 1114 33.00	No. 100, 41/2 in \$12.00
Bent Trimmers.	No. 100, 5 19.00
No. o, 81/2 in\$21.00	No. 100, 6 13.00
No. eo, 9 24.00	No. 100, 61/2 13.50
Heinisch Button hole Chat	1 100, 100, 7 14.00
R. H. S.	ters \$15.00
Brown Japan	nned Handles.
Ladies' Scissors.	Don den
No. 1, 5 III	No. 8, 11 27.00
No. 3, 6 10,00	No. 10, 13 33,00
No. 1, 5 in	No. 9, 12 30.00 No. 10, 13 33.00 Bankers' or Paper Shears, with Trimmer Handles.
No. 5, 7 12.00 Barbers' Scissors.	Handles
Timed	
Lapped.	A. C.
No. 1, 71/2 in 15.00	A. C.
No. 1, 7½ in 15.00 No. 2, 8½ 15.00 No. 2, 0	A. C.
No. 1, 71/4 in 15.00 No. 2, 81/4 15.00 No. 3, 9 16.00 No. 4, 91/4 17.00	A. C.
Barbers' Scissors. Lipped. No. 1, 7½ in 15.00 No. 2, 8½ 15.00 No. 3, 9 16.00 No. 4, 9½ 17.00 Bent Trimmers.	A. C.
No. 1, 7½ in 15.00 No. 2, 8½ 15.00 No. 3, 9 16.00 No. 4, 9½ 17.00 Bent Trimmers. No. 1, 8½ in 16.00 No. 2, 0 78.00	A. C.
No. 1, 7½ iii 15.00 No. 2, 8½ 15.00 No. 3, 9 16.00 No. 3, 9 16.00 No. 4, 9½ 17.00 Bent Trimmers. No. 1, 8½ iii 16.00 No. 2, 9 18.00 No. 3, 10 27.00	A. C.
No. 1, 7½ in. 15.00 No. 2, 8½ 15.00 No. 3, 9 16.00 No. 3, 9 16.00 No. 4, 9½ 17.00 Bent Trimmers. No. 1, 8½ in. 16.00 No. 8, 9 18.00 No. 3, 10 27.00 No. 4, 11 30.00	No. 1, 11 in
No. 1, 7½ in. 15.00 No. 2, 8½ 15.00 No. 3, 9 16.00 No. 4, 9½ 17.00 Bent Trimmers. No. 1, 8½ in. 16.00 No. 8, 9 18.00 No. 9, 9 18.00 No. 9, 9 18.00 No. 4, 11 90.00 No. 5, 18 33.00 No. 5, 18 33.00 No. 5, 18 33.00 No. 6, 13 36.00	No. 1, 11 in
No. 1, 8½ in 16.00 No. 2, 9 18.00 No. 3, 10 27.00 No. 4, 11 30.00 No. 5, 12 33.00 No. 6, 13 36.00	No. 1, 11 in
No. 1, 8½ in 16.00 No. 2, 9 18.00 No. 3, 10 27.00 No. 4, 11 30.00 No. 5, 12 33.00 No. 6, 13 36.00	No. 1, 11 in
No. 1, 8½ in 16.00 No. 2, 9 18.00 No. 3, 10 27.00 No. 4, 11 30.00 No. 5, 12 33.00 No. 6, 13 36.00 Pocket Scissors. No. 1, 4 in 18.00	No. 1, 11 in
No. 1, 8½ in 16.00 No. 2, 9 18.00 No. 3, 10 27.00 No. 4, 11 30.00 No. 5, 12 33.00 No. 6, 13 36.00 Pocket Scissors. No. 1, 4 in 10.00 No. 2, 4½ 10.00 No. 3, 4½ 10.00	No. 1, 11 in
No. 1, 8½ in 16.00 No. 2, 9 18.00 No. 3, 10 27.00 No. 4, 11 30.00 No. 5, 12 33.00 No. 6, 13 36.00 Pocket Scissors. No. 1, 4 in 10.00 No. 2, 4½ 10.00 No. 3, 4½ 10.00	No. 1, 11 in 24.00 No. 2, 12 30.00 No. 3, 13 96.00 No. 4, 14 42.00 No. 5, 15 48.00 No. 6, 16 54.00 No. 7, 17 66.00 No. 8, 18 76.00 Bankers' or Paper Shears, with Ring
No. 1, 8½ in 16.00 No. 9, 9 18.00 No. 3, 10 97.00 No. 4, 11 90.00 No. 5, 13 33.00 Pocket Scissors. No. 1, 4 in 10.00 No. 9, 4½ 10.00 Tallors' Points. No. 1, 5 in 10.00 No. 8, 5½ 11.00	No. 1, 11 in. 24,00 No. 2, 12 30,00 No. 3, 13 3,50,00 No. 4, 14 42,00 No. 5, 15 48,00 No. 6, 16 54,00 No. 7, 17 06,00 No. 8, 18 78,00 No. 8, 18 78,00 No. 1, 8 in 15,00 No. 2, 8 in 15,00 No. 3, 10 21,00 No. 3, 10 21,00 No. 5, 12 30,00 No. 5, 12 30,00 No. 6, 13 36,00 No. 7, 14 42,00 No. 6, 13 36,00 No. 7, 14 42,00 No. 7, 14 42,00 No. 7, 14 42,00 No. 7, 14 42,00 No. 8, 15 48,00
No. 1, 8½ in 16.00 No. 2, 9 No. 3, 10 27.00 No. 4, 11 30.00 No. 6, 12 33.00 No. 6, 12 33.00 No. 1, 4 in 10.00 No. 2, 4½ 10.00 Tailors' Points. No. 1, 5 in 10.00 No. 2, 3½ 12.00 No. 2, 3½ 12.00 No. 2, 3½ 12.00 No. 2, 3½ 12.00 No. 3, 5 12.00	No. 1, 11 in. 24,00 No. 2, 12 30,00 No. 3, 13 3,50,00 No. 4, 14 42,00 No. 5, 15 48,00 No. 6, 16 54,00 No. 7, 17 06,00 No. 8, 18 78,00 No. 8, 18 78,00 No. 1, 8 in 15,00 No. 2, 8 in 15,00 No. 3, 10 21,00 No. 3, 10 21,00 No. 5, 12 30,00 No. 5, 12 30,00 No. 6, 13 36,00 No. 7, 14 42,00 No. 6, 13 36,00 No. 7, 14 42,00 No. 7, 14 42,00 No. 7, 14 42,00 No. 7, 14 42,00 No. 8, 15 48,00
No. 1, 8½ in 16.00 No. 2, 9 No. 3, 10 27.00 No. 4, 11 30.00 No. 6, 12 33.00 No. 6, 12 33.00 No. 1, 4 in 10.00 No. 2, 4½ 10.00 Tailors' Points. No. 1, 5 in 10.00 No. 2, 3½ 12.00 No. 2, 3½ 12.00 No. 2, 3½ 12.00 No. 2, 3½ 12.00 No. 3, 5 12.00	No. 1, 11 in. 24,00 No. 2, 12 30,00 No. 3, 13 3,50,00 No. 4, 14 42,00 No. 5, 15 48,00 No. 6, 16 54,00 No. 7, 17 06,00 No. 8, 18 78,00 No. 8, 18 78,00 No. 1, 8 in 15,00 No. 2, 8 in 15,00 No. 3, 10 21,00 No. 3, 10 21,00 No. 5, 12 30,00 No. 5, 12 30,00 No. 6, 13 36,00 No. 7, 14 42,00 No. 6, 13 36,00 No. 7, 14 42,00 No. 7, 14 42,00 No. 7, 14 42,00 No. 7, 14 42,00 No. 8, 15 48,00
No. 1, 8½ in 16.00 No. 2, 9 in 18.00 No. 3, 10 27.00 No. 4, 11 30.00 No. 5, 12 33.00 No. 5, 12 33.00 No. 1, 14 in 20.00 No. 2, 4½ 10.00 Tailors' Points. No. 1, 5 in 10.00 No. 2, 5½ 11.00 No. 3, 6 12.00 Biraight Trimmers. No. 6 in 10.00	No. 1, 11 in. 24,00 No. 2, 12 30,00 No. 3, 13 3,50,00 No. 4, 14 42,00 No. 5, 15 48,00 No. 6, 16 54,00 No. 7, 17 06,00 No. 8, 18 78,00 No. 8, 18 78,00 No. 1, 8 in 15,00 No. 2, 8 in 15,00 No. 3, 10 21,00 No. 3, 10 21,00 No. 5, 12 30,00 No. 5, 12 30,00 No. 6, 13 36,00 No. 7, 14 42,00 No. 6, 13 36,00 No. 7, 14 42,00 No. 7, 14 42,00 No. 7, 14 42,00 No. 7, 14 42,00 No. 8, 15 48,00
No. 1, 8½ in 16.00 No. 2, 9 in 18.00 No. 3, 10 27.00 No. 4, 11 20.00 No. 6, 12 33.00 No. 6, 12 33.00 No. 6, 13 10.00 Pocket Scissors. No. 1, 4 in 20.00 No. 2, 4½ 10.00 Tailors' Points. No. 1, 5 in 10.00 No. 3, 5½ 11.00 No. 3, 6 12.00 Straight Trimmers. No. 0, 6 in 10.00 No. 1, 6½ 11.00	No. 1, 11 in. 24,00 No. 2, 12 30,00 No. 3, 13 3,50,00 No. 4, 14 42,00 No. 5, 15 48,00 No. 6, 16 54,00 No. 7, 17 06,00 No. 8, 18 78,00 No. 8, 18 78,00 No. 1, 8 in 15,00 No. 2, 8 in 15,00 No. 3, 10 21,00 No. 3, 10 21,00 No. 5, 12 30,00 No. 5, 12 30,00 No. 6, 13 36,00 No. 7, 14 42,00 No. 6, 13 36,00 No. 7, 14 42,00 No. 7, 14 42,00 No. 7, 14 42,00 No. 7, 14 42,00 No. 8, 15 48,00
No. 1, 8½ in 16.00 No. 2, 9 18.00 No. 3, 10 27.00 No. 4, 11 30.00 No. 5, 12 33.00 No. 6, 13 35.00 No. 1, 4 in 10.00 No. 2, 4½ 10.00 Tallors' Points. No. 1, 5 in 10.00 No. 2, 5½ 11.00 No. 2, 5½ 11.00 Hospital Trimmers. No. 0, 6 in 10.00 No. 1, 6½ 11.00 No. 0, 6 in 10.00 No. 1, 6½ 11.00	No. 1, 11 in. 24,00 No. 2, 12 30,00 No. 3, 13 36,00 No. 4, 14 42,00 No. 5, 15 48,00 No. 6, 16 54,00 No. 7, 17 66,00 No. 8, 18 76,00 Rankers' or Paper Ring Handles. No. 1, 8 in 15,00 No. 2, 9 18,00 No. 3, 10 21,00 No. 4, 11 24,00 No. 5, 12 30,00 No. 5, 12 42,00 No. 5, 12 42,00 No. 6, 13 36,00 No. 7, 14 42,00 No. 8, 18 Scissors. No. 200, 4% in. 10,00 No. 200, 5 10,00

We again invite the attention of the trade o the auction sale of Cutlery by the Table Cutlery Manufacturers' Association, the particulars of which will be found in the advertisement of Bissell & Welles on the opposite The sale will take place on Wednesday, Thursday and Friday, 24th, 25th and 26th instants. Over \$75,000 worth of goods will be offered, comprising in part about 5000 gross Table Cutlery, 6000 pairs of Carvers and 1500 dozen Butcher Knives. We are informed that all the goods offered will be of first quality. The sale will be made in quantities to suit both large and small buvers.

Hubbard, Bakewell & Co., Pittsburgh, Pa., have issued a handsomely illustrated catalogue and price list of their specialties. print below their price lists of Axes and Shovels and Scoops. In Saws they illustrate a large variety, comprising solid and inserted tooth Circulars, Mill, Gang, Drag and Crosscut Saws, &c. Their discounts are : On Axes. 50 cents per dozen on Single Bits and \$1 per dozen on Double Bits; Saws, discount 35 per cent.; Shovels, discount 45 and 5 per cent., and Scoops. discount 50 per cent.

HUBBARD, BAKEWELL & CO.'S PRICES OF AXES. James & Co.'s Diamond Brand, \$1.50 less than H., B. & Co. Double Bits.

James & Co.'s Diamond Brand \$4 less than H., Co. d Jacket shape \$2 per dozen more than regu-

lar shape.

Firemen's Axes, fancy paint, \$30.

Hubbard, Bakewell & Co.'s Bullion Axes are
English Steel and Lippincott's American; each
are first quality and extra selections.

All Axes have polished heads and are painted
gold color unless otherwise ordered.

They invite special attention to their Solid Cast Steel Shovels and Spades, which they have introduced within the past two years, have introduced within the past two years, and which have been received with much favor. They say of these goods: "The enfavor. They say of these goods: "The entire blade and strap are one solid piece of steel, while all other solid (so-called) Steel Shovels are iron strap and steel blade, the strap being either welded to the blade in the mold or in the sheet."

HUBBARD, BAKEWELL & CO.'S PRICE LIST OF SHOV-ELS, SPADES, SCOOPS, ETC.

	н	mbh	ar	d, Bakewell & Co.	
Orden No.				Patent Solid Cast Steel.	.0
Order No.		CHEC		ratent Soud Cast Steel.	
44	12,		41	16	20,00
66	13,		5,	*4 44	21.00
	14,	6.0	6,	66 66	39.00
44	15,	6.6	7,	# Woldow	23.00
86	жD,	4.6	2,	moluers	18.00
84	17,	44		Extra Railroad	15.50
11	×9,	44	4.		17.00
40	20,	44	5,	64	18.00
-	21,	0.6	6,	41	19.40
6.6	22,	**	70	**********	20,00
		1	Lin	pincott & Co.	
4.6	-	0.0		Cast Steel Edge	
84	23,	64			14.50
44	25,	64	41	44 44	16,00
46	26,	44	50	44 44	17.00
44	27,	4.6	6,	44 44	18.00
	28,		7,	*****	19.00
			J	ames & Co.	
66	00	6.6	-	Steel Edge	¥2.00
+6	29,	8.6			13.75
**	31,	8.6	4,	44	15.25
66	32,	6.6	5,		16.25
66	33,	44	5,	44	17.25
	542	_	7.		18.25
Black Sq				t Shovels, \$1 per dozen andle, same price.	less.
				Polished. d, Bakewell & Co.	
Order No.	35.	Size	2,	Patent Solid Cast Steel	18.00
44	30,	0.0	2,	Extra Railroad	15.50
54	37.	46	2,	Patent Nursery, Heavy	
	-			Ironed	23.00
16	38,	6.6	2,	Patent (191) Drain	21.00
84	39,	0.0	2,	" (194) Ditching	21.00
40	40,	6.6	2,	" Post Hole	20,00
14	41,	4.6	2,	" Subsoil	22.50
	4-1	1		pincott & Co.	
84		40		Cast Steel Edge	24 50
	42,				14.50
				ames & Co.	
64	43,	6.6	2,	Steel Edge	13.75
Black S	nade	M. 5		per dozen less. Long Ha	
same price		and 4	, .	her mann round was	
Nos -9	20.8	nd .	m s	Spades, made only full pol	dall.
1400. 30,	39 a	and 4	10 6	The test of such a Feet of	To all
Long Ha	ndle	ROS	ina	l Point Shovels.—Plain E	rack,
			F	ull Polished.	
	H	lubb	MI	d, Bakewell & Co. Patent Solid Cast Steel	
Order No.	44.	Size	2.	Patent Solid Cast Steel	18.00
44	45,	66	2.	Extra Railroad	15.50
	401	1		pincott & Co.	
44		44			
	46,			Cast Steel Edge	14.00
			J	ames & Co.	
66	47.	4.4	2.	Steel Edge	13.25
Black !	Ry The	r de	TER	n less. D Handle, 50 cent	s per
dozen mo			-	a real a manual, 30 cent	100
				Dated Changle Back C	·
D Hand	ie s	qua	re	Point ShovelsBack S	crup,
				Polished.	

			2 010011001
			ard, Bakewell & Co.
Order N	0. 48.	Size :	, Extra Cast Steel \$13.00
66	49.	69 5	Molders 13.00
6.9	53,	46 (" Cast Steel 17.00
	-	L	ippincott & Co.
8.0	54.	64	2, Cast Steel 11.50
8.6	#8,	66	6, 46 16,00
	-		James & Co.
64	50.	** 1	, Steel 11.00
			Anderson.
6.0	60,	60 5	Extra Iron 9.50
			R. Woods.
4.6	6x.	44 .	, Iron 8.50
Black	8. "	or de	zen less. Long Handles same
price.	4. 1		ben real and
D Hand	dle S	quan	Point Spades.—Back Strap,
	83	Inhha	ard, Bakewell & Co.
O-2 37			, Extra Cast Steel \$13.00
Order N	0. 02,	Size 2	ppincott & Co.
86	63,		Cast Steel 11.50
	03,		James & Co.
6.6			, Steel 11.00
,,,	64,	. 3	Anderson.
44	6-	04	Extra Iron 0.50
	65,		R. Woods.
44	66.	44 5	Iron 8.50
Black	St De	er do	zen less. Long Handles, same
price.	A. D.	- 00	

Long Handle Round Point Shovels.—Back Strap, Full Polished. Hubbard, Bakewell & Co.
Order No. 67, Size 2, Extra Cast Steel.......\$12.50 Lippincott & Co. James & Co.
2, Steel.... Anderson, Extra Steel.

2, Iron....

Black, \$1 per dozen less. D Handle, 50 cents per subject to draft payable at sight for the full Long Handle Round Point Mining Shovels.—Back Strap, Full Polished. Hubbard, Bakewell & Co Order No. 72, Size 2, Stiff Point Cast Steel...\$14.00

73, 12, Half Spring 13.50

14, 2, Full 11...13.50

Black, \$1 per dezen less. D Handles, 50 cents

Round Point Collier Shovels,-Full Polished, Hubbard, Bakewell & Co. Order No. 75, Size 2, Extra Cast Steel... Lippincott & Co. " 76, " 2, Cast Steel..... R. Woods. Black, 50 cents per dozen less. 77. " 2, Iron.. D Handle Coal Shovels .- Back Strap, Half Pol'ed,

Hubbard, Bakewell & Co. Order No. 78, size 1, Extra Cast Steel. 79: 2, 16 686 8 80, 16 3, 16 681, 16 41 " Coke 23.0 Lippincott & Co. Anderson. 85, " 1, Extra Iron..... 86, " 2, " 87, " 3, " Hubbard, Bakewell & Co. Hubbard, Bakewell & Order No. 88, size 1, Sunken Back. 89, 2, 90 3, 91, 4, 92, 1, Corrugated. 92, 1, Corrugated. 93, 1, 94, 1, 3, 1, ...

Black 50 cents per dozen less. Corrugated Strap, 50 cents net per dozen more. Long Handle, same price. Our regular

Pittsburgh Pattern Scoops.—Back Strap, Full Polished. Hubbard, Bake well & Co. 19.0 Lippincott & Co. Cast Steel Anderson. Extra Iron.

	North-East	ton	Pa		Scoops olished.	. Back	Strap,	Full
,		H	ubb	ard,	Bakewe	Il & Co.		
	Order No.	SIX.	Siz	e 2. I	Extra Ca	st Steel		\$16.00
1	0.6	112.	64	9.	46	68		16.75
1		113,	6.6	4.	+6	65		27.50
1		114,	64	5,	4.0	0.6		18.25
1		315,	6.6	6,	4.6	9-9		19.00
1		116,	6.0	a.	6.6	6.0		19.75
		117.	4.6	á.	6.6	6.6		20,00
1		118.	6.5	Q.	6-8	6.6		21.50
1		119,	4.6	10,	4.5	6.6		21.50
		-	1	inni	acott &	Co.		
	80		05					** **
		124,	6.0		last Stee			15.00
		125,	44	3.	44	******		15.50
		126,	44	42	**			16.00
	100	127,	44	5.	**	******		16.50
	-	128,		6,	44	******		17.00
		129,	4.6	8,			******	17.50
1	46	130,	4.6	8,	1.6		******	18.00
,	44	131,	4.6	9,	6.6	** ****		18.50
	44	132,	44	10,	6.6			19.00
				Az	derson.			
	44	137,	4.6	a. F	xtra Iro	m		13.50
1	+4	138,	6.6	3,	66			14.00
1		139,	64	41	6.6			14.50
,		140,	66		6.6			15.00
•			44	5,	66	******		15.50
,		141,	4.6		4.4	******		16.00
١		142,	44	8,	66	*****		16.50
	**	143,	44		**	*****		17.00
		144,	66	9,	4.6	******	******	
		145,		10,		******		17.50
					Woods			
5	6.6	150,	**	2, 1	ron			12.50
	4.6	151,	++	3,	44			13.00
	46	152,	6.6	4,	**			13.50
ı	66	153,	6.6	5,	44			14.00
	16	154,	6.6	6,	46			14.50
	46	* D 41	4.0		64			15.00

155, 156, 157, 158, Half Polished, 50 cents per dozen less. Black, \$1 per dozen less. Corrugated Straps, 50 cents net per dozen more. Locomotive and Coal Scoops, Back Strap, Full Polished.—North-Easton Pattern. Hubbard, Bakewell & Co. 163, Size 2, Extra Cast Steel

Extra heavy Blades and Straps. Corrugated Straps, 50 cents net more per dozen. instant:

> H. CHAPIN'S SONS' DISCOUNT SHEET Catalogue of January, 1874.

Cata. Page.
1-10, Boxwood Rules.
11-13, Ivory and Miscellaneous Rules.
14, Bench Planes, Common "Pearce".
15-19, " with English Irons inste PINE MEADOW, Conn., July 1, 1878. Dis. per cent. 14, Bench Planes, Extra and Premium.
15-19. with English Irons instead
American. Iron Bench Planes, H. A. Foss' Patent
23-23, Ship, Cooper and Miscellaneous Planes.
24-50. Modling Planes.
51-54. Grooving Plows.
55-56. Gauges
55-58. Scholl's Patent
58/%. Marden's
59-60. Butler's
59-60. 59-50, Butler's 59-63, Plumbs and Levels, Non-adjustable... 62\(\frac{1}{2}\)-62\(\frac{1}{2}\), "Hatent Adjustable... 62\(\frac{1}{2}\)-62\(\frac{1}{2}\), "L. L. Davis' Patent 62½-62½, 62½, A B & C. Adjustable 63, Pocket Levels 63, Level Glasses. 64-65, Hand Screws 65, Bench Screws 65, Turning Saw Frame 67. 66, Turning Saw Frames.
67, 68, Chisel Handles, New List Feb. 1, 1878.
69, File and Awl Handles, New List Feb. 1, 1878.
69, Plane Handles,
69, Saw Handles,
70-71. StOp8.
72, Screw Drivers, Mincing Knives and Awls.
72, Door Stops. 72, Spoke Shaves, Mosaire, 23, Toy Tool Cheef. Supplies.
73. Toy Tool Cheef. Supplies.
74. Boring Machines, Reduce List No. 525 to \$3, No. 535 to \$0,25.
75. W. Thrall & Son, Try Squares, No. 2.
76. "Try Squares, No. 1.
77. Squares, No. 1.
78. Sliding J Bevels, No. 1.
79. "Try Squares, No. 1.
79. "Try Squares, No. 1.
71. "Try Squares, No. 1.
72. "Try Squares, No. 1.
73. "Try Squares, No. 1.
74. "Try Squares, No. 1.
75. "Try Squares, No. 1.
76. "Try Squares, No. 1.
77. "Try Squares, No. 1.
78. "Try Squares, No. 1.
79. "Try Squares, No. 1.
79. "Try Squares, No. 1.
70. "Try Squares, No. 1.
71. "Try Squares, No. 1.
72. "Try Squares, No. 1.
73. "Try Squares, No. 1.
74. "Try Squares, No. 1.
75. "Try Squares, No. 1.
76. "Try Squares, No. 1.
77. "Try Squares, No. 1.
78. "Try Squares, No. 1.
79. "Try Squares, No. 1.
79.

76-77, Plane Irons.....

amount of invoice. Quotations on Boxwood Rules given on application.

We have received the following circulars, which explain themselves:

COPARTNERSHIP NOTICE.

Having admitted three of my sons in business with me, the name and title of the firm, dating from this date, is

J. B. SHANNON & SONS,

PHILADELPHIA, July 1, 1878.

FORESTVILLE, CONN., June 20, 1878. We have this day appointed C. E. Jennings & Co., 98 Chambers street, New York, the exclusive agents for the sale of all goods made by us. The entire production of our factory will hereafter be sold through them.

GEO. F. STEARNS, Secretary,
Conn. Valley Hardware Co.,
Mfrs. Paine's Patent Solid Head Auger Bits.

The American Chain Company of Philadelphia are busy on Chain Cables at their works at Milldale. Schuvlkill county. Pa. The company propose to incorporate shortly under the act of 1874. In their prospectus they say: "With every length of Chain sold the company give a guarantee of 25 per cent more strength and wear than any other Chain of the same size and quality of Iron. Notwithstanding the great increase of strength and wear, the cost of manufacturing this Chain does not exceed that of ordinary chains." The Philadelphia office of the company is at 130 South Sixth street.

We invite attention to the advertisement of Thomas Pope, which will be found among "Special Notices" on the opposite page. Mr. Pope has opened an office at No. 90 Chambers street for the sale of his specialties, and invites the trade to inspect his assortment of leather goods, including dog collars and muzzles, book and shawl straps and kindred articles. He has also made arrangements with Fernald & Sise to represent him when traveling, and they will fill orders for his goods at his best trade prices.

IRON.

American Pig.-The condition of the Iron market is unchanged so far as dullness and inactivity are concerned. No sales worthy of mention are reported, and the only transactions we hear of are in small lots for present use. The majority of the Lehigh companies have completed their semiannual statement, and the results seem to have determined them to look for higher prices than those which have ruled the marlest for some time. Thus we hear that one of the companies who have hitherto been reported as being weak in the matter of prices, has instructed its agents to make no sales unless on the basis of \$18 for No. 1, and so far as we can learn all of the Lehigh companies are of the same mind; nevertheless it is proper to remark that first-class Iron other than Lehigh can still be obtained at an important concession from the above named price. We quote as before : Foundry No. 1, \$16.50 @ \$18; Foundry No. 2, \$15.50 @ \$17; Gray Forge, \$14.50 @ \$16.

Scotch Pig.-There is nothing doing in Scotch Iron except in a retail way. We hear of the arrival of 250 tons Coltness and Eglinton in ballast. We quote Glengarnock, \$23.75; Eglinton, \$22.75, and Coltness, \$24.

Rails.-In Rails there is nothing to report and we repeat former quotations, viz.: Steel, at mill, \$43 @ \$44, and Iron, according to quality, terms, &c., \$32 @ 36.
Old Rails.—In the absence of business we

quote \$17 @ \$18, which is the nominal price. Scrap.-We quote No. 1 Wrought, from yard, \$20 @ \$21.

METALS

Copper.-Sales for the week have been confined to 150,000 th Lake Superior at 16¢ @ 16 1/4, the market closing with a declining tendency at 16¢ @ 161/4¢. Baltimore we quote 161/¢, nominally. Nothing has transpired in futures. London cables Best Se-Straps, so cents not more per dozen.

H. Chapin's Sons have issued the following discount sheet under date of the 1st \$\mathbb{L}_{1}\$. 10/ @ £63. This shows a decline of the 1st \$\mathbb{L}_{1}\$. 10/ \$\mathbb{H}\$ ton. Mail advices have reached us from London to the 6th instant. The visible supply in England and France ist instant was 41,782 tons, against 35,578 tons in 1877, 31,431 in 1876, 30,084 in 1875 and 32,275 in 1874, the price of Chili Bars being £64, against £69 in 1877, £74 in 1876, £82 in 1875 and £78 in 1874. The charters at Valparaiso to the 30th of June, 1878, were 22,350 tons, against 21,600 during the corresponding six months of last year. The unfavorable statistical position thus disclosed sufficiently explains the difficulty which Copper encounters on the other side in its fitful attempts at recovery. Trade in manufactured Copper is rather light, but the combination rates are unchanged. English Yellow Sheathing Metal is dull and nominal. The price of American is irregular on account of its competition with English. We quote: New Sheathing Copper, 26¢; Braziers', 28¢, and Bolts, 28¢ American Yellow Sheathing Metal, 14¢ @ 20¢; Yellow Metal Bolts, 25¢, and English Yellow Sheathing Metal, 131/2#, currency, ia bond.

Tin. -No new features can be reported this week. Tin is pressed for sale at rates lower than the cost to import it. Only small parcels have found buyers during the week. We quote, in gold, large lots, as follows: Straits, 14¢ @ 141/4¢; English Refined, 141/4¢; ditto Common, 133/¢, and Banca, Both the London and Singapore 1716. markets are unaltered. Mail advices have Discount 10 per cent. for cash, if received reached us from England to the 6th inst., within 30 days from date of invoice. Accounts unpaid at the expiration of 60 days

The June deliveries in England and Holland

been but 1356 tons, against 1556 in May; 1638 tons in June, had been but 1356 tons, against 1556 tons in May; 1638 tons in June, 1877, and 2201 tons in June, 1876. The visible supply on July 1, was 17,914 tons, against 17,904 on the 1st June, 1878; 18,025 July 1, 1877, and 13,761 on July 1, 1876. The London stock in particular has been swelling most steadily all along, and the metal is looked upon with manners a rangiation as at any previous time, if not more. The stock of Banca Tin at Banca on April 1 was 60,331 piculs, and the production of Billiton Tin. which had been 59,533 piculs in 1876. had 60,331 piculs, and the production of Billiton Tin, which had been 59,533 piculs in 1876, had increased to 61,794 piculs in 1877. Low prices, therefore, do not seem to affect production in the least in Netherland India; they certainly do not on the Australian Continent, and least of all in Tasmania. Nor has war or peace any perceptible influence on the metal in Europe, for it declines in the face of the Eastern settlement. While the production is increasing consumption in face of the Eastern settlement. While the production is increasing consumption in Europe does not keep pace with it, and speculators for a rise seem to be leaving the metal to shift for itself as well as it may, and holding out but a poor prospect to those who, by obstinacy rather than by faith, still cling to it. Tin Plates.—The market here is very to it. Tin Plates.—The market here is very quiet and business slack. Coke Tin, the cable informs us, continues weak on the other side and Charcoal strong. We quote large lines, ordinary brands, gold, per box, as follows: Charcoal Bright, \$5.87½ @ \$6.12½; do. Ternes, \$5.50; Coke Tin, \$4.87½ @ \$5; and do. Ternes, \$4.75. They write from Liverpool under date July 4 to the following effect: "This market presents quite an anomalous appearance at date. While Charcoal Tins and Ternes of both corts are unprecurable for any brands of while Unarcoal Tins and Ternes of both sorts are unprocurable for any brands of repute, except at an advance, Coke Tins were never more depressed, and are vainly seeking buyers at the lowest figures ever reached."

Lead .- Sales of not quite 200 tons Common Domestic have been made during the week at 31/4 and 31/4, currency, the market closing at 31/4 @ 31/4 currency, nominally. Holders still show considerable firmness, and 600 tons just considerable firmness, and cost consultant arrived went into store. This and the prospect of an increasing consumptive demand in the near future prevents a return to lower figures than the range we have just given; if any Lead were forced on the just given; if any Lead were forced on the market at this juncture a temporary decline would, however, be unavoidable, the expected more active consumptive demand not yet manifesting itself. Stock at New York 4000 tons; afloat this way and expected overland for the next 60 days, 2500 tons; total visible supply, 6500 tons, by no means a large one, if, as we have indicated, the consumptive demand soon shows itself. They write from England under date July 4: "Large sales of Pig Lead have been mide during the past week, and advances of 7/6 @ 10/ are now asked. So far this rapid advance has checked business, but buyers advance has checked business, but buyers advance has enecked business, but buyers are quite prepared to pay 5/ ? to more than their last purchases." Manufacturers' prices are unchanged, and we quote: Bar, 5¢; Pipe, 5¢; Tin-Lined Pipe, 12¢; No. 1 Solder, 8½¢; all less 10 % to the trade.

Spelter and Zinc.—Matters in the Spelter parket are developing artifaction.

Spelter and Zinc.—Matters in the Spelter market are developing satisfactorily, and we are informed that a sale of good quality Western has been effected as high as \$\phi\$, currency. We quote the market, 45\$\phi\$ (@ 5\$\phi\$, currency. An uninterrupted upward movement is going on in Silesia, the principal Continental country of production, 2000 cwt. C. G. H. having been sold on the spot at Breslau at 17.15 marks the 50 kilos., and of futures for local consumption 6000 cwt. Silesian Union and 10,000 cwt. Hohenlohe, both at 17 marks. Now 17.15 marks would lay Silesian down here at the comparatively high figure of 57\$\phi\$, gold, and under this lay Silesian down here at the comparatively high figure of 57%, gold, and under this none can be had at present. The stock here is quite small. Sheet Zinc.—The market is Quite small. Sheet Zinc.—The market is Graham, quite dull, and prices are to a great extent nominal. We quote: Domestic, 61/4 @ 61/4, currency, and Mosselman, 73/4 @

Nickel.—The massacre of a good many white people in New Caledonia by the na-tives will not stimulate emigration to that colony from the surrounding countries in the Pacific, and Nickel mining may suffer from a lack of hands. The metal has of late become more active among us and sells at \$1.10 @ \$1.25, currency, according to brand

Antimony.—There is a fair jobbing de-and and the market is steady. We quote mand and the market is steady. We quote the metal 12¢ @ 12¾¢, gold. London cables, £50.

OLD METALS, PAPER STOCK, &c.

We have no perceptible change to report in the condition of this market since our last report. There is no activity in business, and dealers have not much prospect of doing any trade before the 1st of September, as consumers are about taking up stock and consumers are about taking up stock and cannot be induced to buy, no matter how great the concessions may be. The purchasing prices offered by dealers for Old Metals are as follows:

Copper, heavy per B. \$0	LI3 C	*	*
Copper Bottoms	.10% @	*	
Walley Motel	.10 @		
Desar hoovy	.oo @		
O Moht	.07 @		
	.11% @		
Composition, nearly.	.02% @	*	•
Leonal, Burker,		٠	*
Tee Lead	.03 @		*
Wina	.02% @		*
Bomton No T	.00		*
Pewter, No. 2	.07		
Wrought Iron pr ton. \$16	.00 0		
	.00		C
	.00	*	
Machinery do	.00		
Grate Bars 3	.50 @		,
Dame	An ana		

TOTTO						
Canvas,	Linen			 per D	3 C. @ 3%	
6.6	Cotton,	No.	1	 44	3%C. @	
8-6	4.6	No. :		 - 66	1 % C. @	
White, ?	SO. 1			 44	3 % C. @	
	No. 2				2% C. @	0.0.0
Seconds					150. O .	
Mixed.	Woolen.			 20		
Soft.				0.0	6%c. @ 7	C.
Gunny b	agging.			 0.5	3 C, @	
Jute but	ts			 	3%c. @	
Kentuck	y baggi	D.OF		 0.0	3 C	
Book Sto	nek			 	2%C. @	**
Newspar	ner Stock	k	***	 1.4	134 C. @ 134	C.
Waste P	aper an	1 Ser	aps.	 0.0	%c. @	
Kentuck					4 C. Q :.	
Oakum.					4%C. 65 5	
ORKUM.	5 NZ.	0. 0		 6.6	3 C. @	
Tarred !					I C. @ 1%	
					75 17	
Grans Re	3136				1203 34	60

EXPORTS

Of Hardware, Iron, Machinery, Metals, &c., from the Port of New York, for the Week ending July 16, 1878.

Stettin.	Marseilles.						
Quan. Value Mf. iron, pkgs. 16 \$27	C'ge mtl. pkgs 31 450						
法在1000年,但是1000年的	A STATE OF THE PROPERTY OF THE STATE OF THE						
Hdw., pkgs 39 1,11 Ag. imp., pkgs 72 2,70 Pumps, pkgs. 10 350	Cuha						
Belting, cs 5 74 Mach'y, pkgs. 13 2,96 Copper, cks 90 9,10	6 Ag. imp., pkgs 31 1,595 Hdw., pkgs 143 1,626 Wire, pkgs 88 000						
Sew. mach, cs. 1163 11,500 Bremen.	Tinware, ease 1 2 Grindstones 12 3 Mach'y, pkgs. 212 2,56						
A A-4 au	Pumpa pleas						

Gas fixt., cs.. 4 30 Hdw., pkgs.. 15 57 Ag. imp., pkgs 200 1,30 Mach'y, pkgs. 9 7 Guns, cs.... 2 1,00 Pumps, pkgs. 1 Gas fixt., bxs. 3 Bellows..... 7 Mf. iron, pkgs. 267 Guns, case... 1 Nails, kegs ... 131 Sew. mach., cs 1 Antwerp. Arms, cs.... 3 Ag. imp, pkgs ro Pl'd ware, pgs 3 Mexico. Mf. iron, pkgs 116 Liverpool. Hdw., pkgs. 124 Refrigerators, 28

Ag. imp., pkgs 92 Mach'y, pkgs. 16 Pistols, case... 1 313 London. C'ge mtis., pgs 53 Br'ss g'ds., cs. r Lead, pigs... s50r Mach'y, pkgs. 7 Tinware, cs... 2 Sew. mach, cs. r Hdw., pkgs... 3r Tubing, cs... r Glasgow. Mach'y, cs... 6 Ag. imp., pkgs 5 Belting, cs... 6 Hdw., pkgs... 20 1,250 United States of Co-Ag. imp., pkgs 26 Belting, cs... 1 Pumps, pkgs. 11 944 940 733

Belting, cs... 1 240
Pumps, pkgs... 11 733
Dutch West Indies.
Mf. iron, pkgs... 23 183
Sew. mach., cs. 2 48
Hdw., pkgs... 13 126
British West Indies.
Hdw., pkgs... 13 210
British West Indies.
Hdw., pkgs... 13 210
British West Indies.
Gartridges, cs...
Cartridges, cs.
Guns, case...
Sew. mach., cs. Coal, tons... 650 2,600 Mr. iron, pkgs 71 1,978 Mr. iron, pkgs 71 1,978 Mr. iron, pkgs... 4 59 Mach'y, pkgs... 4 59 Argentine Republic. Tin, bxs... 6 32

Pumps, pkgs. 2
Mf. iron, pkgs 34
Ag, imp., pkgs 746
Beiting, bale. 4
Pl'd ware, pgs 3
Hdw., pkgs. 354
Mach y., pkgs. 9
Trucks. 14 British Guiana. Hdw., cs.... 10 New Zealand. 8a Ag. imp.,pgs.6264 125,000 Mach'y, pkgs 8 150 Havre.

Mach'y, pkgs. 13 1,800
Ag. imp., pkgs 193 6,029
Copper, cks. 162 34,400
Sew. mach. cs 10

IMPORTS

Of Hardware, Iron, Steel and Metale inte the Port of New York, for the Week ending

0	Hardware.	Naylor & Co.
5	Boker Hermann & Co.	Spiegel, tons, 250
r,	Hardware, anvils &	Bars, 1346
ŕ	Outlery, pkgs., 516	Pig, tons, 300
•	Baldwin Bros.	Panama Railroad Co.
	Gun barrels, cs., 2	Bundles, 2
1-	Bland F. & Son,	Bars, 40
y .	Guns, cs., 3	Perkins, Livingstone Post,
d	Burkinshaw W. C.	Spiegel, tons, 200
	Cases, 3	Order,
18	Degraw, Hymar & Co. Chains, lengths, 2;	Spiegel, tons, 257%
ø	casks, 3.	Wire rods, bdls.,
\$	Furness, Bannister & Co.	Pig, tons, 250
d	Casks, I	Sheet, bdls., 60
i-	Frasse P. A. & Co.	bxs., 6
	Mdse., pkgs., 3	Bars, 1098
0	Guittermann Bros.	Plates, 12
rt	Cases, 5	Steel.
d	Hurst F. W. J.	
b.	Anvils, 140	Mosher H. M.
	Montgomery J. M.	Bundles, 24
2	Cases, I	Prosser Thomas & Sc
d	McCoy & Co. Cases, 2	Forgings, 176
y	Moore's J. P. Sons,	Stead J. G.
	Awara on a	Cases, x

Mosher H. M. Bundles, Mosher H. M.
Bundles, 24
Prosser Thomas &
Forgings, 176
Stead J. G.
Cases, 1
Woodford W. O. Bundles, 47 Bars, 9 Cases, 7 ler, Bars, 30 Bundles, 26 Cases, 9 Casks, 4 Wire plates, 33 Tyres, 8

Metals.

gers, 150 Lead, bars, 730 Lead ore, bbls., 82

Graham,
Guns, cs., r
Schoverling & Daly,
Arms, cs., ro
Guns, cs., ro
Guns, cs., ro
Gun barrels, cs., r
Seymour, W. N.
Casks, r
Sussfield, Lossch & Co.
Cases, 3
Thompson J.
Cases, 2 Metals.

Arango A.

Scrap cop., bxs., 3;
metal, bxs., 3
metal, bxs., 3;
metal, bxs., 1200
Cort N. L. & Co.
Tin plates, bxs., 1200
Cort N. L. & Co.
Tin plates, bxs., 175
Fuller, Dans & Fitz,
Tin plates, bxs., 175
Tin taggers, bxs., 130
Hayaraf R. W. & Co.
Scrap metal, cks., 2
Hagan & Billings,
Lead, bars, 480
Meyer Moritz,
Lead, bars, 348
Naylor & Co.
Tin plates, bxs., 793
Phelps, Dodge & Co.
Tin plates, bxs. 12,453
Windmuller Louis &
Roelker,
Castr Cases, 2 Woods J. P. & Co. Gun wads, cs., 16 Empty cartridge cases, cs., 6 White John G. & Bro. Wolffe H. & Co. Cases, 10 Wiebush & Hilger Hard-

ire Co. ery & hardware pkgs., 29 Order, Arms, cs., 6 Cases, 23 Casks, 7 Per. caps, os., z4. Cartridges, cs., 449 Roelker, Casks, 15 Iron. er, Tin pl't's, bxs., 11,637 Tin, ingots, 800 Tin plates, bxs., 250 Tin and black tag-

Marvel W. D. Ore, tons, 970
Milliken & Smith,
Wire rods, bdls., 572
Moore's J. P. Sons,
Bundles, 227
Bars, 54

COAL

The Coal trade during the past week has shown few items of interest. The stagnation of business in the anthracite trade continues, dealers and others still buying, for the most part, in a hand-to-mouth fashion.

We hear of a few who are beginning to stock up to some extent. Lehigh steam Coals are tore Plate

The prices current for Rags, &c., are as The stagnashown few items of interest. size that seems to show any signs of scarcity. Prices as quoted in circulars are nominal and concessions are made to meet customers

PHILADELPHIA.

Office of The Iron Age, 220 South Fourth St. | FRILADELPHIA, July 16, 1878. In general business, considering the season, we have to report a very fair movement of goods, and the prospects of the fall trade are considered quite encouraging. The Iron trade continues greatly depressed, how-

ever, and with few exceptions the large es-tablishments manufacturing tools and machinery report no improvement. Locomo-

tive building continues moderately active, and at the Baldwin works a full force of hands is employed, with every prospect of permanency. At the Iron shipbuilding permanency. At the Iron shipbuilding yards the outlook for the balance of the year is entirely satisfactory. At Cramp's upward of 1500 men are employed, work on the Russian vessels being for the moment the most important. Several large ocean steamers are waiting for repairs, and the keel is being laid for a first-class Iron steamer (to replace the California sold to the Russians) for use the California sold to the Russians) for use on the Pacific Coast. Most of the other builders have a fair amount of work on hand, the last contract closed being for an Iron steamship for the West Indies, the cost something over \$100,000. There are two other contracts pending of a similar character, so that the immediate outlook is somewhat encouraging. The capacity of the yards is so great, however, that a constant succession of orders are necessary to maintain anything like permanent activity. In tain anything like permanent activity. In bridge building, business has been unusually heavy and there is still a large amount of work on hand, but there appear to be very few new orders at the moment. At the Keystone Bolt and Rivet Works (Hoopes & Keystone Bolt and Rivet Works (Hoopes & Townsend) a fair average business has been done during the past six months. Mr. J. H. Steinbergh, of Reading, also makes a similar report, both firms working pretty well up to their full capacity. At the Coleman Eagle Bolt Works (Welsh & Lea) business has been unusually brisk, their pay roll last month having been the heaviest they ever had. The general feeling seems to be that the fall trade will be satisfactory, and it is hoped the long expected and often pre-dicted improvement will soon begin to as-

sume a definite shape.

Pig Iron.—In small lots of good Foundry
Irons there is a fair amount of business
doing at the full prices recently ruling, but ti is impossible to move large lots of ordinary brands unless at concessions. The average prices realized for lots of 20 up to 100 tons each appear to be \$17.50 @ \$18, with some extra favorable brands commanding as high as \$18.50. For larger lots of ordinary quality, \$17.50 is regarded as a full price. quality, \$17.50 is regarded as a full price, with a considerable amount of business reported at a lower figure. Buyers are cau-tious, however, and cannot be induced to purchase in anticipation of future require ments, so that it is almost impossible to force sales, the effect of such an attempt usually resulting in a reduction of price without any corresponding increase in business. The future seems to be as clouded and uncertain as ever, and it is impossible to predict what may occur during the next three months. The best standard brands are steadily held at about \$18, and it is not unlikely that this figure will be maintained; first because to a limited extent there is always a demand for

a first-class Iron, and second because the makers seem disposed to limit productions in proportion to that demand rather than reduce prices to a level with brands which have less reputation. This is the talk, at all events, and as present figures are said to be below cost of production, it is likely that furnaces will be blown out sooner than run at a still greater loss than the present shows. Outside lots are offered at very low prices, but we cannot learn of actual transactions, which in any case would be at exceptional prices and out of the ordinary course of busi-ness. We quote as before: No. I Foundry

prices and out of the ordinary course of business. We quote as before: No. 1 Foundry at \$17.50 @ \$18.50. No. 2 Foundry, \$16 @ \$16.50; Gray Forge, \$15 @ \$16; White and Mottled \$13 @ \$14, a lot of 4000 tons White and Mottled Iron belonging to Jay Cooke's estate is offered at \$11 per ton, but so far no bid has been made. Blooms.-There is no improvement in the

Blooms.—There is no improvement in the demand, although prices are again weak and lower: Sunken Scrap Blooms (2404 b), \$38 @ \$40; Northern Ore Blooms (2240 b), \$35 @ \$39; best quality Charcoal Billets (2240 b), for wire and steel purposes, \$58 @ \$60; Bars do., \$62.50 @ \$65; Sheet Iron Blooms, cornered (2464 b), \$55 @ \$58; Cold-blast Charcoal Plate Blooms, \$51 @ \$53; run-out Anthracite, \$48 @ \$50. \$53; run-out Anthracite, \$48 @ \$50. Muck Bars.—The market is entirely nom

inal at \$29 @ \$32, according to quality. Structural Iron.—There is but little to add to our last week's report, and so far as we can learn no orders of importance have been entered for some time past. There are some inquiries, however, and it is likely that business will be forthcoming toward the close of the month, although buyers are less report than they represent the control of the state of urgent than they were some time ago. The mills are pretty well employed, however, on previous orders, and in the mean time quota-tions are steady and firm as follows: Angles,

2.2¢ @ 2.4¢; Tees, 2.4¢ @ 2.5¢; Beams and

Channels, 2.7¢ @ 2.8¢. Plate and Tank Iron.—The week past Plate and Tank Iron.—The week past has brought out a good many inquiries, and a fair amount of business in small lots. Prospects have improved during the past few days, and there is a general expectation of orders being placed which will keep the mills steadily at work during the greater part of this and next month. Soveral leading concerns are already well supplied with orders, and for the present there is a fair prospect of a steady business at unchanged prices. viz.: Common Plates, 2.24 @ 2.36; prices, viz.: Common Flates, 2.25 @ 2.35, Tank Iron, 2.3\$ @ 2.5\$; C. No. 1, 2.4\$ @ 2.6\$; Shell Iron, 2.75\$ @ 2.9\$; Flange Iron, 3.75\$ @ 4\$; Solid Firebox, 4.55\$ @ 5\$; and Best Bloom, 5.5\$ @ 6\$. Common Plates, 2.2¢ @ 2.3¢ viz. :

Sheet Iron.-The mills in this vicinity which were shut down for a couple of weeks started up again yesterday, although the demand for their products shows little if any improvement. There seems to be a fair amount of inquiries, however, and when prices are cut down low enough business can be obtained, but manufacturers claim that asking prices leave no margin fo and bids are generally at figures which, if accepted, would result in positive loss to the seller. A fair demand is looked for as the season advances, but from present indicaseason advances, but from present indications prices are not likely to improve. We quote as before: Common Sheet, No. 24 to 26, 2.9ϕ @ 3ψ ; No. 27 to 28, 3.1ϕ @ 3.15ψ ; Refined Sheet Iron, No. 25 to 28, 3.3ϕ @ 3.4ψ ; No. 22 to 24, 3.1ψ @ 3.2ψ ; No. 16 to 21, 3.1ψ ; Best Bloom Sheets, No. 25 to 28, 5ψ @ 5.2ψ ; No. 22 to 24, 5ψ ; No. 16 to 21, 4.7ψ @ 4.8ψ ; Common Red Plates, 5.1ϕ to 18, 2.4ψ @ 4.8ψ ; Refined Plates or Blue Annealed, 5.1ϕ to 18, 2.5ψ @ 4.8ψ ; American, R. G., 5.1ϕ to 18, 4.8ψ @ 4.8ψ ;

Best Bloom, 5-16 to 18, 4.9\$ @ 5\$; Philadelphia Russia, 6\$ @ 6.5\$; A. Patent Planished, 101/\$\$; B. Patent Planished, 91/\$\$; it is understood, companies, in view of the Bloom Galvanized, 40 %; Refined Galvanized.

Bar Iron.—There is very little business doing, and no change in prices. Some of the leading stores report a fairly active de-mand for small lots, but the total amount of business for the week is far from satisfac tory. The mills find it as difficult as ever to find a market for their products, and prices remain in the same unsettled condition as noticed in our recent reports. For the time being there is nothing encouraging in the outlook, and there is nothing upon which to base expectations of improvement in the immediate future. We quote according to quality from 1.5¢ for common to 2¢ for Best

Steel Rails.-There is nothing new to eport, chiefly because the mills have all the orders they can handle, and are making no efforts to secure further business. for 20,000 tons for the C. B. and Q. Railway Company will probably be placed this week, and other smaller lots amounting to several thousand tons have also been placed during the past few days. Inquiries are numerous, and there is no doubt that buyere are somewhat anxious to place their orders when they can do so at the inside quotation, but so far as we can learn sales of late have been chiefly at medium figures. The Pennsylvania Steel Company shut down their mill vania steel company sant down their initial some days ago for repairs and may not start up again until toward the end of the month, the hot weather being very severe on the employees. We make no change in quotaemployees. We make no change in quotations, although sales at the lower figure are now quite exceptional. We quote \$43 @ \$45 at mills, according to location, with slight concessions for late deliveries.

Iron Rails.-We cannot report any large ots as definitely closed, but there are orders in the market for at least 15,000 tons, a fair proportion of which it is expected will be placed at an early date. Sales during the past week have been in lots of a few hundred tons each, the total being less than 2000 tons. The difficulty with buyers appears to be that they want too long time, while as a rule sellers look carefully after their securities, present prices being too low to permit of risks being taken. Prices are steady and unchanged, say ordinary sections at \$32.50

(2) \$34.50, according to quality and terms of

Old Rails.-The market is firm and steady without being specially active, although buy-ers manifest more interest in the market than they have done for some time past. Sales could easily be made at the prices ruling some time ago, but holders are firm, and for good qualities \$19 @ \$19.50 appears to be about bottom figures, at which we quote the market quiet and firm. Sales a day or two ago, 1000 tons, \$19, cash; 1000 tons, \$19.50, 4 mos., with interest.

Scrap Iron,-The market is dull and prices barely steady, although selected qualities still command outside figures. We quote: Cast, \$14 @ \$15.50; Wrought, \$20 @ \$22.

Nails.—The market is inactive, with \$2.30 named as the usual price for wholesale lots. although \$2.25 is probably more nearly the actual selling price.

PITTSBURGH.

Office of The Iron Age, 77 Fourth Avenue, PITTSBURGH, PA., July 16, 1878.

General business, particularly in Iron circles, continues very unsatisfactory, owing largely to the recent suspensions, which have very materially weakened confidence. "Iron paper" a few years ago was considered gilt edge, as Iron firms were, to use a common phrase, thought to be "solid," but the events of the past two or three years have pretty well reversed the situation, and "Iron paper" generally is looked at with as much if not more scrutiny than any other kind. While there is no getting over the General business, particularly in Iron cirkind. While there is no getting over the fact that the Iron business is in a very unthat the fron business is in a very unsatisfactory condition, not only here but throughout the West, it is also true that many firms are "as good as wheat," and being engaged largely in the manufacture of specialties have made and are still making money. The great trouble in the Iron busi-ness just now comes from those manufacturers in weakened circumstances who have little or no credit, and the only way have to raise money is to sacrifice their goods. They are forced to realize, and buyers, ever on the alert, and who have a knowledge of the straitened condition of the firms in question, are not slow to take advantage of the same. This is the cause of so much Iron as well as many other goods being sold at or below cost of production, and until these firms, in this condition, are wound up and put out of the way there is not likely to be any decided or permanent improvement. Those manufacturers who do not expect to pay more than 10 or 20 or 50 cents, as the case may be, on the dollar, can, of course, undersell those who expect to pay dollar for dollar, and herein lies the great source of the very unsatisfactory condition of affairs at the present time.

Pig Iron.—The most important feature we have to notice is the disposition manifested by producers generally to sell only for cash, excepting to buyers of undoubted standing, and it is not strange in view of the heavy losses they have sustained resently, as under the most favorable circumstants where its property of the results of the standard products of the standard p scances there is no margin for profit. To sell an article like Pig Iron at cost, or for less than cost is bad enough, but, in addition, accepting the paper of those who may not be able to take care of the same is what the Pig IIon men propose to shut down on. This being the case it is not strange that business is dull; but there appears to be a firmer undertone, and in the present condition of the market a slightly increased demand, particularly from solid buyers, would no doubt cause an advance in price, as stocks are light and the production is more reduced now than at any time since the panic. It is stated that out of the 30 furnaces in the Mahoning Valley but five are in blast. Producers have at last but five are in blast. Producers have at last realised the situation that to continue in the course they have been pursuing for some years will lead them all to disaster, to avert which they have very wisely concluded to

it is understood, companies, in view of the fact that they have been sustaining losses recently, intend to draw the lines very recently, intend to draw the lines very closely and sell on time only to those of undoubted standing. The effect of this will be to force those furnace companies whose credit is at all impaired to shut down, whether they are disposed to or not. Bituminous Coal Smelted Irons may be Bituminous Coal Smelted Irons may be quoted at \$18 @ \$20, 4 mos., for Foundry, and \$17.50 @ \$18.50, 4 mos., for Gray Forge. Sale of 1000 tons Forge at \$17, cash. Coke Irons—\$16 @ \$17, 4 mos., for Forge. Hanging Rock Charcoal—\$20 @ \$22, 4 mos., for Mill, and \$23 @ \$26, 4 mos., for No. 2 and 1 Foundry. Bituminous Pig Iron firm, and while the last sale reported was at \$10.50, 4 mos., delivered here, it is understood that it is now held at \$20. However, as the Rail mills are pretty \$20. However, as the Rail mills are pretty well supplied, there is not much inquiry, although, if there is a probability of an advance, some of the mills will no doubt be disposed to anticipate future wants.

Manufactured Iron.-As stated in our last report, a firmer feeling has been de-veloped within the past few weeks, and as it is pretty evident that hard pan has been reached, an increased demand soon is probable. We hear of rumors of occasional sales at the cut-throat rates; but it is very evident that those offering to sell at these rates, are forced to do so in order to raise funds, having no other resource, only to sacrifice their goods; or else the goods are of an inferior character. There has been a largely increased production of inferior Iron within the past few years, for which manufacturers are to be found fault with, as they were forced to it in order to meet the mania for something cheap, and those buyers who place their orders at rates much under our quotations, need not expect to obtain goods of first quality. We con-tinue to quote Best Refined at 1.70¢ @ 1 80¢ rates, 60 days, and poorer qualities at from one to two tenths less. We do not take as authority firms in a crippled condition, and who in order to realize, are offering to sell regardless of cost.

Nails.—Contrary to general expectation Nails.—Contrary to general expectation the Western Association, which met here last Wednesday, did not advance prices, nor was any action taken in regard to production. While a large majority of the members present, from what we can learn, were in favor of an immediate advance, it was deemed best to let matters stand as they are for the present, in order, possibly, to give those who are responsible for the present. those who are responsible for the present demoralized condition of the market the benefit of the same. But very few of the mills in the West are running, and while very low prices are still quoted manufacturers are making efforts to sell, and we do not ers are making entores to sell, and we do not believe that an order for any quantity could be placed at \$2 rates, notwithstanding it is intimated that sales have been made below the rates just quoted. There is to be a spe-cial meeting of the association on the last day of this month, at which time a price, considerably above those now quoted, will no doubt be agreed upon, and we suspect that manufacturers will not be in the market in the meantime.

Horse and Mule Shoes.-There is nothnorse and Adde Shoes—There is nothing new to report. Business only fair; prices unchanged. We continue to quote, in 100 keg lots, at \$3.37½ and \$4.37½, cash, for Juniata brand. An increased demand in August is probable.

Steel.—The demand at present is rather slack, as it usually is at this season of the year, but an increased inquiry is probable within the next week or two, and the indications are favorable for a good fall trade. The consumption of American Steel is stead-The consumption of American Steel is steadily increasing. It has superseded the foreign article in all American markets in consequence of being cheaper, and owing to low cost it has for many purposes taken the place of Iron. Tool Steel may be fairly quoted at 11½¢ @ 12½¢; Machinery Steel, 5¢ @ 7¢; Boiler Plate, 7¢ @ 8¢.

5¢ @ 7¢; Boiler Plate, 7¢ @ 8¢.

Wrought Iron Pipe.—Business continues, dull for the season, but it is hoped and expected that there will be an increased demand after harvest. Prices unchanged. Discounts on Gas and Water Pipe, 60 @ 65; on Boiler Tubes, 35 @ 40; Oil Well Casing and Tubing, net cash. Manufacturers have lost so much in bad debts on the latter that here have formed an agreement test leads. they have formed an agreement to sell only for cash.

Rails.—The market for Steel Rails continues firm but unchanged; \$44 @ \$45, cash, delivered at mill; Steel Blooms, \$42, and Steel Billets, \$45, cash, delivered at mill; Old Iron Rails are quotable at \$19,50 (\$20, cash, for Ordinary, and \$20.50 (\$21, cash, for special lots; sale of 400 tons at \$19.50, cash

Scrap.-The demand for all kinds of Scrap continues light, but business in general is about all that can be expected at this particular time and under existing circum-stances; while stocks are not large they are ample to meet present requirements. Prices weak but nominally unchanged as follows:

Old Car Wheels, gross ton.	Cash \$18 @ \$19
No. 1 Wrought Scrap, net ton.	20 @ 21
Boller Scrap, net ton.	23 @ 24
Wrought Turmings, net ton.	14 @ 16
Cast Turmings, gross ton.	10 @ 12
Car Springs, net ton.	34 @ 35
Car Axles, net ton.	28 @ 29

continues light and the prospect is not favorable for any improvement before September. Nearly all the factories have shut down. Discounts still quoted at 75 \$ on car-load lots, 60 days, with 2 \$ off for cash. Fruit Jars, for which there is an active demand, have been advanced \$1 per gross on quarts and \$1.50 on gallon jars.

sp po qu for ear \$3: Ste

in is sia En @ chi:

for @ Ma

hav

Ame orde

Coke,-While the demand has fallen off somewhat it is holding out well for the sea-son; the consumption has been unusually large this season, the low price at which it is being sold having caused many furnace-men to use it instead of coal. We continue to quote at \$2.15 @ \$2.18 per ton, delivered free on cars in Pittsburgh.

Coal.—The market continues dull and in

not be sufficient water to run Coal for two or three months, as the down river markets are all overstocked and prices are down very lllyrian, from Liverpool, brought 140 kegs

CHATTANOOGA.

CHATTANOOGA.

Office of The Iron Age, Market and 8th Sts., {
CHATTANOOGA, July 16, 1878. }

The intense heat of the past week has about held business still. Men have done what they had to do, and no more. All sorts of produce, fruits and grains literally glut and overload the market, and prices rate so low as to discourage the farmers. In the Iron business the only circumstance to note of any importance is the steady and rapid improvement in the quality of Pig. Charcoal as well as Coke Irons are very superior to the products of the same furnaces a few months ago. Rising Fawn, the best Coke furnace in the South, and Tecumseh, one of the best Charcoal stacks, have been specially mentioned by dealers and exbeen specially mentioned by dealers and experts for the successful efforts of their managers in the work of improvement. And now if our mills can get just the ore they now if our mills can get just the ore they need for fettling, a corresponding improve-ment may be expected in the quality of all wrought Iron. The course of general trade in all lines is dull and lifeless, and will not materially improve before the 1st of September.

Pig Iron.-There have been about the Pig Iron.—There have been about the usual amounts handled. Southern foundries have made their usual purchases for immediate use. Forge Irons were quiet and steady. Some small shipments of Charcoal Irons have been made to Northern plow factories, and the usual shipments of wheel metal to Northern foundries. The stock of foundry Irons has not been as full in this market as it is now not been as full in this market as it is now for many months. We quote: Coke Irons, No. 1 Foundry, \$17@ \$18; No. 2, \$15@ \$16; Gray Forge, \$13@ \$14; White and Mottled, \$11@ \$12. Hot Blast Charcoal—No. 1 Foundry, extra, \$20@ \$21; do., \$18@ \$20; No. 2 Foundry, \$16@ \$18; Gray Forge, \$15@ \$17; White and Mottled, \$15. Cold Blast Charcoal—Car Wheel Metal, \$22.50@ \$27.50; do., Extra Standard, \$24.60@ \$29.50; Forge, \$17.60@ \$22. Muck Bar.—\$27@ \$344; Old Rails, \$17 not been as full in this market as it is now

Muck Bar.—\$27 @ \$34; Old Rails, \$17 @ \$17.50. Old Car Wheels, \$18.

Ores.—Brown Hematite, 50 to 56 %, ; ton, \$1.75 @ \$2.25. Red Fossiliferous, to 56 %; \$2 ton, \$1.70 @ \$1.90. The aborices for Ores delivered in Chattanooga cars or on the wharf from flat-boats.

Nails,-The demand for Nails has dec edly improved, but prices are no bette Large stocks from the Upper Ohio factori are stored in Memphis and other cities of the Mississippi and Lower Ohio, and are bing offered at rates which would net abo \$1.90 at the factories. We quote at \$2.2 with usual discounts on large lots.

Manufactured Iron.—The market pretty good for the season. The mills a on full time and no stocks are accumlating. Railroad supplies are in fair requestance. Bar we quote at \$2; Railroad Spikes, \$2.5 Light Rail, \$2.25; Track Bolts, \$3; Tres Bolts, \$4.

Coke.-We quote at \$2.50 per ton on care in Chattanooga.

Coal.—We quote run of mine to manufacturers at \$1.50 @ \$2 per ton, on cars, at Chattanooga.

CINCINNATI.

Messrs. E. L. Harper & Co. (successors to Messrs, L. R. Hull & Co.), under date of July 13, write us as follows: While the tone of the market has been decidedly quiet during the past week the volume of busi-mess has been fully up to the standard of this time of year. Several large lots have changed hands on private terms and at in-side figures. The inquiry for fall purchases gives encouragement for a large business when the season opens, but there are no pointed indications of a better feeling in prices, unless it be that nearly all the hypothecated lots in this section have been closed out to actual consumers, and stocks at the furnaces are light. Quotations unchanged: HOT-BLAST FOUNDRY.

Hanging Rock C. C., No 1	21.50 @ 22.00
C. C., No. 2	
Alice, No. 1 Extra, I. M	20.00 @
" No. 1 " N. O	19.00 @
NO. I. N. U	18.50 @
Hanging Rock Coke and S. C., No. 1	18.00 @ 20.00
S. C., No. 2	15.00 @ 17.00
Virginia Coke, No. 1	19.00 @ 20.00
No. 9	17.00 @ 17.50
Shawnee S. C., No. 1	18.50 @ 19.00
B. U., NO. 2	16.00 @ 17.03
Hocking Valley S. C., No. 1	18.50 @ 19.00
S. C., No. 2	16.00 @ 17.00
FORGE IRONS,	
Hanging Rock, No. 1 C. C	18.00 @ 19.00
Hanging Rock, No 1 Coke	16.50 @ 17.00
Longdale, No. z Coke	
Ala, and Tenn, No. 1 C. C	16.50 @ 17.00
Ala, and Tenn. No. 1 C. C	16.50 @ 17.00
Ala, and Tenn. No. 1 C. C. Red-short, No. 1 Coke Cold-short, No. 1	16.50 @ 17.00 16.50 @ 17.00 18.50 @ 19.50
Ala, and Tenn. No. 1 C. C. Red-short, No. 1 Coke Cold-short, No. 1	16.50 @ 17.00 16.50 @ 17.00 18.50 @ 19.50 15.50 @ 16.00
Als. and Tenn. No. 1 C. C. Red-short, No. 1 Coke Cold-short, No. 1 Old Rails, primecash,	16.50 @ 17.00 16.50 @ 17.00 18.50 @ 19.50 15.50 @ 16.00 19.00 @ 20.00
Als. and Tenn. No. 1 C. C. Red-short, No. 1 Coke Cold-short, No. 1. Old Rails, prime	16.50 @ 17.00 16.50 @ 17.00 18.50 @ 19.50 15.50 @ 16.00 19.00 @ 20.00
Ale, and Tenn. No. 1 C. C. Red-short, No. 1 Coke Cold-short, No. 1. Old Rails, prime	16.50 @ 17.00 16.50 @ 17.00 18.50 @ 19.50 15.50 @ 16.00 19.00 @ 20.00 E.
Als. and Tenn. No. 1 C. C. Red-short, No. 1 Coke Cold-short, No. 1. Old Rails, prime	16.50 @ 17.00 16.50 @ 17.00 18.50 @ 19.50 15.50 @ 16.00 19.00 @ 20.00

BOSTON.

JULY 12.—Pig has been purchased in insignifiant quantities at a time, and the market is almost nominal. We repeat our former quotations. Scotch Pig is quiet and steady. The speculative lot of which we spoke a few weeks ago supplies a fair proportion of what little demand there is. portion of what little demand there is. We quote: \$19 for No 1, \$18 for No. 2, and \$17 for Gray Forge. Bar continues quiet and easy, quoting \$39.50 for Refined and \$34 @ \$35 for Bolt; American Rails, \$32 @ \$37; Steel Rails, \$42 @ \$43, from mill. Nails are in light domand at unchanged prices. Sheet Steel Rails, \$42 @ \$43, from mill. Nails are in light demand at unchanged prices. Sheet is selling at \$\psi\$ @ \$3\psi\$ \psi\$ B. Russia is quiet at \$103\psi\$ @ \$11\psi\$. We quote English Spring Steel at \$7\psi\$ @ \$6\psi\$, gold; \$9\psi\$ @ \$1\psi\$ for German; \$9\psi\$ @ \$1\psi\$ for Machinery; \$1\psi\$ for Cast; \$10\psi\$ @ \$12\psi\$ for Blister; \$8\psi\$ for American Spring; \$13\psi\$ @ \$14\psi\$ for Cast; \$0\psi\$ for Blister; and \$8\psi\$ for Machinery. All kinds of Manufactured Iron have had a light week's trade, and prices favor the buyer. The Victoria, from Liverpool, brought \$28\psi\$ bdls. Coiled Rod Iron, American Screw Company; \$32 cs. Steel, order. The Siberia, from Liverpool, brought \$55\$ bdls. Steel, \$0\$ anvils, Dodge, Gilbert & 55 bdls. Steel, 80 anvils, Dodge, Gilbert &

Nails, Brooks & Young. The bark Waaland from Rotterdam, brought 100 bdls. Steel Jere Abbott. Some inquiry for Steel Rails is reported, but, as the mills are all well supplied with orders, there is little anxiety on the part of makers to accept further business except on their own terms, which, as a rule, are considerably in advance of the as a rule, are considerably in advance of the minimum prices of last spring. Copper.—Ingot has been extremely quiet, the sales aggregating, from first hands, scarcely 150,000 lbs. Lake at 16¢ @ 16½¢, and the market closes nominal at 16¢. London remains steady, quoting Best Selected, £70 @ £70. 10/, and Chili Bars, £64 @ £64, 10/. Lead is strong at the advance. We quote:

ST. LOUIS.

Specially reported by Messrs. Spooner & Collins, Iron Commission Merchants, 217 North Third street, St. Louis, under date of July 11: The Pig Iron business has been very dull the past week. Nearly all our mills and foundries are closed down during the hot season. We anticipate no business until after August 1. Old Rails are very dull.

RICHMOND.

Mr. Asa Snyder, Iron Merchant and Furnace Agent, Richmond, Va., writes as follows under date of July 15: No feature of interest in the Iron market. The hot season has wilted energy and vegetation alike. No change in quotations:

American Scotch Pig Iron........\$22.00 @ 23.00

	No. 1.	No. 2.	Mill.	White and M't'ld	
M'souri Stone Coal	\$22.00	\$20,00	\$19.00	\$17.00	
Missouri Charcoal	20.00	19.00	18.00	16,00	
Tenn. Charcoal	90,50	19.00	17.50		
Tenn. Coke, very				Mot- tled.	White
soft and strong. Hang. Rock Char-	30,00	-		-3	
Hang. Rock Char-	24.00	23.00	21.00	20,00	
coal, Cold-short.	23.00		Extra		
	Extra		A		
	No. 1	I. M.	Na-	Na-	. c.
	Ore.	Ore.	tive.	tive.	Allice Scot
	Extra		В		A4%
Wann Dark Cake			No. 1.		
Hang, Rock Coke. Moxahala Black-	-3.00	22.00	21,00	19.00	
band Ores	23.00	22.00	21,00	10.00	

COLD-BLAST CHARCOAL-All Nu	mbers.	
Hanging Rock most	\$28.00 @ 2	3.0
Tennessee	25.00 @ 2	0.0
Kentucky mos.	25.00 @ 2	
Missouri most	25.00 (7) 2	
Georgia mos.	25.00 (0) 2	
Alabama mos	25 00 00 2	
Assorted Bar Iron	1.75 @	
No. z Railroad 🐿 100	.70 @	
Heavy Cast Scrap	.60 @ .	
Light " " "	.40 @	
Old Rails mos.	19.00 @ 2	0.0
Old Car Wheels mos.	17.00 @ 1	8,0

BALTIMORE.

Mr. W. N. WYETH, Iron and Steel Merchant, 46 and 48 South Charles street, reports us the following prices, under date of July 15: Trade for the past week has ruled only moderate, but already there are indications of preparation for the fall trade, which is expected will be unusually large. Values are unaltered at annexed figures: Refined Bar Iron, z to 6 wide by 34

to 1 thick	Th	1.85	@	2	e
Refined Bar Iron, 1 to 41/2 wide by		3	-	_	*
ria to 2 thick	64	1.85	60	2	
Refined Bar Iron, 1/4 to 2, Round			4,5	_	,
and Square	4.6	1.85	0	9	é
Hoop iron, 11/8 wide and upward	4.5	236			
Band Iron, from 11/4 to 4 in. wide	44	234			
Horse-shoe Iron	64	3			
Norway Nail Rods	46	43/4	an.	52	6
Black Diamond Cast Steel, Flats,		4/4	-	274	
Squares and Octagon, ordinary					
sizes	6.6	13	0	14	é
Machinery Steel	64	8		IO	
Cast Spring Steel	66	6		634	
Homogeneous Steel Plate	0.6	7		73	
Common Horse Nails	44	13	m.	16	é
R. R. Spikes, 51/4x9-16		21/40	GO	28	14
Perkins' Horse shoes, W keg of 100 l	hå.	-/	8	2.25	14
" Mule shoes				1.37	
10		8		6	10
	io.		21	91	d

Globe Horse Nails...... b 18 19 20 27 27¢ Less list discount to the trade. Messrs. R. C. HOFFMAN & Co., Iron and Messrs. R. C. MOFFMAN & Co., Iron and Commission Merchants, No. 23 South Fred-erick street, report the Pig Iron market as follows, under date of July 15: We have no change in the Iron market, and quote as

Baltimore	Charcoal	Pig			٠.		 		\$26.00 @	28.00
Virginia	**	**					 	0 1	 26.00 @	28.00
Anthracite	No. 1						 		80.00 (A	20.00
11	No. 2						 		 x8.00 (A	10.00
44	No. 3								 x6.00 (m.	17.00
	Mottled	and	V	V١	bii	te.			12.00 @	84.00
Charcoal,	C. B. Bloc	ms							50.00 Q	52.00
	Bille	ets.						 	52.00 @	55.00
Refined B	looms								43.00 @	45.00

LOUISVILLE.

Messrs. Geo. H. Hull & Co., under date of July 15, write us as follows: The market is quiet, but is assuming a more healthy tone. There is little or no Iron now pressed is quiet, on the market by needy holders, and the stock in the hands of consumers is small. Some of the largest producers are blowing out, and from all indications consumption is now in excess of the production. If this state of things continues we shall have a steady and strong market at no distant day.
The usual time, 4 months, allowed on quota-

tions below:	a on quota-
FOUNDRY IRONS.	
No. 1 Hanging Rock, Charcoal	18.00 @ 20.00
Coke No. 2 Hanging Rock, Stonecoal and	19.00 @ 20.00

No. 1 Southern, Stonecoal and Coke	17.00 @	10.00
10. 2 "	16,00 @	17.00
American Scotch"	18.00 @	20,00
Silver Gray	15.00 @	17.00

MILL IRONS.

No. 1 Charcoal, Cold-short and Neut'l. 16.00 @ 17.00
No. 1 Stonecoal and Coke, Cold-short
and Neutral.

No. 2 Stonecoal and Coke, Cold-short
and Neutral.

No. 1 Shonecoal and Coke, Cold-short
and Neutral.

15.50 @ 16.00
White and Mottled

and Neutral. 15.50 @ 16.00 o. 1 Missouri and Indiana Red-short. 20.00 @ 21.00 hite and Mottled, Cold-short and Neutral. 13.00 @ 15.00

his salary. Nails are still weak, though we think they have touched bottom. It is amusing to hear the decline called a "raid" upon Southern markets and Southern manu facturers. It is not so sectional as that the southern markets and southern manufacturers. It is not so sectional as that, but an unhappy internecine war among the Ohio Valley mills, and more apt to be more fatal to themselves than to outsiders.

American Scotch Pig Iron	22.00 @	22.00
Anthracite, No. 1	10.00 (0)	20,00
No. 2	18.00 @	
No. 3	17.00 @	
" Mottled	14.50 @	
Coke, No. 1	19.00 @	
No. 2	18.00 @	
" No. 3	16.50	
Va. Cold-blast Charcoal, Cold-short	20.00 @	
Va. " Neutral	37.00 @	
Va. Warm-blast " Cold-short	18.00 @	
Va. " Red-short		
	17.00 @	
	16,00 @	
Wrought Scrap No. 1	17.00 @	
	17.00 @	
Richmond Refined Bar Iron	2C. @	
Horse Shoes per keg	4.25 @	4.50
Mule " "	5.50 @	
Old Dominion Nails, Standard Size, 19		
keg	2.40 @	
Paralash to to Till the Late to the	2.40 (0)	

Freights to Philadelphia, \$1.40 per ton of 2240 B., Freights to New York, \$1.60 per ton of 2240 D., by sail.

FOREIGN.

FRANCE.

FOREIGN.

FRANCE.

(Moniteur des Interets Materiels.)

Paris, June 30, 1878.—Metals.—The weather which had been raining for such a long time, endangering the crops, has now become sunny and hot, so much so that it is hoped a short crop of cereals may still be avoided. A better feeling is therefore, growing up in commercial circles, and metals are to a certain extent favorably influenced thereby. Copper, although firmer, has not been active. We quote: Chill Bars, 171.25, francs the roo kilos.; Common ditto, 166.25; Ingots and Slabs, 173.25; Best Selectéd English, 177.50, and pure Corocoro Ore, 175. Havre is steady, and quotes first brands Chill Bars, 167.50 a 168.75; good current ditto, 165 @ 166.25, and Lota and Urmeneta, 165. Marseilles is inactive, but sustained. They quote: Spanish, in slabs, 160; Red Tokat, 165; small Refued Ingots, 175 @ 180; Sheathing, 197.50. Tin has been unusually steady. We quote, at Paris, Banca, deliverable here or at Havre, 180 francs the 100 kilos.; Hilliton and Straits, 170, and English and Australian, 167.50. Marseilles has fluctuated very little. They quote Banca, 185; Straits and Billiton, 170, and English Refined, 180. Lead.—The market here is in a favorable position and rising. We quote French, Belgian, deliverable here, 42.75 francs the roo kilos, and Spanish and English, deliverable at Havre, 41.50. At Havre First Pusion Soft Spanish is worth 42 francs. At Marseilles Lead is well held, and producers will abate nothing from ruling rates. Confidence in this metal is reviving, and some speculative purchases of magnitude are rumored. They quote: First Fusion Soft, 40 @ 4.50; Second Fusion, 39, and Manufactures, 46. Spetter and Zinc.—Nothing has transpired in these articles in this market. We quote Silesian, deliverable at Havre, 4.6, 50 francs the roo kilos; other good brands, 46.50, and at Paris 47. Silesian Spelter commands at Havre between 47 and 48 francs. There is no change at Marseilles. They quote Veille Montagne Steat Charles and Alley and producers will an authority an

BELGIUM.

Spain are in the market for the purchase of 20,000 tons Bessemer Steel Rails, to be delivered at long intervals. There will be great competition from all quarters to obtain this great contract. The Upper Italian Railroad has just adjudicated upon 14,000 tons Bessemer Steel Rails, 25 concerns handing in their bids. Hoeseh & Co., of Rome, for a German firm, offered 10,000 at 150 @ 153.75, deliverable at Genoa.

GERMANY.

ROTTERDAM, June 29, 1878.—Tin.—A languishing state of affairs prevails in our market, yet prices are upheld. Sales of Banca have been effected at 39,59 guilders; of Billiton at 37.75 @ 38 the 50 kilos., spot and to arrive.

(Huth & Co.)

CHILL.

(Huth & Co.)

VALPARAISO, May 31, 1878.—Copper Bars.—With a greatly improved deemand prices have steadily advanced, and all offerings have met with eager buyers. At the commencement of the fortnight and before receipt of the more peaceful European news, \$14.87%, with 5¢ extra for guaranteeing weight and with 43 freight, was accepted for Lota and Urneneta, but on the 28th inst, a parcel of Chanaral changed hands at \$15, with \$2, 10/ freight, and since then allavailable lots on shore here were taken at from \$14.60 to \$14.75, the latter rate being conceded for 2000 quintals of the superior brand "Hundahoro." Buyers now offer \$15.30 on board, with \$\$\phi\$ extra and with \$2\$ freight, but holders are not very anxious to press sales, and the parcel of Lota by the next Straits steamer is not yet in the market. Of Regulus there have been no fresh sales since the departure of last mail, the \$600 quintals now reported having already been sold on the 14th inst. Our market closes firm at from \$6.55 @ 6.60 quintals, \$50.00. Ores.—No transaction for shipment to Europe has taken place since the date of our last report. Sales of Copper during the fortnight, \$2,000 quintals, and of Regulus \$000. We quote at the close Copper, \$15,200; Regulus, \$6.60 for 50%. Charters have been 44,710 quintals fine, and next fortnight may probably reach \$50.000 quintals fine.

EAST INDIES.

(Dummler & Co.)

BATAVIA, May 20, 1878.—Metals.—Iron.—Swedish continues quite nominal; of English, sundry small lots have changed hands at the quotations of our last review. Of Copper Sheathing a sale of English is reported at 73 guilders per picul on credit. Tin.—According to the latest official returns the stock at Banca amounted on December 31, 1877, to 57.501 piculs to which there have been added during the ensuing quarter 2827 piculs, constituting a total supply in April, of 60,330 piculs, from which no shipments were made to Java. The production of Billiton for the year 1877 and 1878 was 61.794 piculs, against 59,533 piculs in 1876 and 1877. Coal.—Several cargoes are offering, but no transactions can as yet be noted. Tonnage.—Our market continues in the same dull and inanimate condition as previously advised; there is little of interest to report, and business during the fortnight was confined to but a few charters. Exchange.—Business during the past fortnight has again been on a very limited scale, but rates have continued to favor seilers. We quote, pounds sterling 12.07½ @ 12.12½ guilders for credit bills.

Our English Letter.

Review of the British Iroa, Steel, Metal and Hardware Trades.

(From our Regular Correspondent.)

LONDON, ENG., July 2, 1878. OLD SOL

has been taking some little revenge out of us during the past week or ten days, in retaliation for the growling which his previous dampness had excited. The heat is now, however, absolutely tropical, the recorded temperature several days last week having been 146° in the sun and 92° to 94° in the shade. With such a roasting atmosphere life is fast becoming a burden. Clothes have become entirely superfluous, and there is here a languid sort of competition as to how much covering can be dispensed with with. has been taking some little revenge out of us in this country during the month of June. The one consolation we have is that it cannot consistently last very long.

AT THE IRON WORKS

the intolerable hight of the thermometer has been a great source of hindrance, it being, as you know, practically impossible for pud-dlers and certain other classes of iron workers to continue their always arduous labors ers to continue their always arduous isloors under such circumstances. As a necessary consequence many of the day "shifts" have had to be suspended and the work carried on during the cooler hours of the night. Where two shifts were in operation this forced alteration has brought about considerable losses to employers.

TIN PLATE AND WIRE WORK

BELGIUM.

(Revue Universelle).

Brussels, June 30, 1878.—fron.—There has been no change in the general situation. Prices are week and the Iron industry is still in an unsatisfactory condition. The Minister of Public Works, instead of having the lot adjudicated upon, has ordered privately 21 Locomotives for the State railroads from the various leading Locomotive builders of Belgium. Each Locomotive is furnished in the sum of 44,000 francs. Some more orders have dropped in from abroad, especially from England, for Tiron, but at exceedingly low prices. Orders are now being filled with great promptness, in order to clear them out of the way for any sudden revival. Mr. E. Frederix, of Liege, is now about to publish his work, "Belgium at the Exhibition of 1878," toward which men of note will contribute. The Netherland Rhenish Railroad Co. is about the Iron being furnished by Messurs, Pierard Bros., of Montigny-sur-Sambre, and the Steel'Rails by the J. Cockeril Society. The material will soon leave for Rotterdam. The Rodange Blast Furnace, about to be blown in, has a great future on account of the rich mines which surround the same, allowing a great saving on the transportation of the rich mines which surround the same, allowing a great saving on the transportation of the rich mines which surround the same, allowing a great saving on the transportation of the raw material. The northern railroads of

work is so exquisitely wrought out in ordiwork is so exquisitely wrought out in ordi-nary tin plate as to have the appearance of oxidized silver. In the wire department there is a host of examples, some of those designed as cut and ordinary flower stands being most admirably done, as also are a num-ber of wire cone screens, meat covers, bird cages, arches, &c. The finest work of this kind is however, some in a number of leads. cages, arches, &c. The finest work of this kind is, however, seen in a number of dandy rolls for paper making, the water-mark weaving being so fine that the judges had to have recourse to the microscope to decide between rival claimants. The Lord Mayer and sheriffs, with the "Worshipful Company of Tin Plate Workers alias Wire Workers," opened the exhibition in state on Saturday in the presence of a great number of urday in the presence of a great number of persons, and many prizes were awarded. This is likely to be the forerunner of annual shows of the same kind.

FRENCH WOOD SCREWS

are just beginning to be pushed in the London market by houses whose works are on the southern side of the English Channel. I have inspected some of these screws of various sizes, from "¼ up to 3," and am bound to say that they are fairly well made. The saw-cut in the head is, perhaps, not over well defined or deep, nor is the thread as sharp as a fastidious practical critic might desire, yet on the whole the screws are of a serviceable sort. They are, at all events, quite good enough for the average builder, whose soul, so far as I have known his order, never rises above the £s. d. view of any question, and who will always use any thing that will just "stick" his work to gether. The French screws will, therefore, be pretty certain to sell with the advantage of at least 10 per cent. in price over the of at least 10 per cent. in price over the English made articles. What with this and the threatened auction on your side, the screw trade bids fair to become more demoralized than ever. As a standing discount 72½ is not amiss, but what shall we say to 80 odd per cent?

ENGLISH ARTISAN REPORTERS
are being talked of in connection with the
Paris Exposition, the idea being that they
shall visit the Exhibition, and pay for their expenses by each writing a report upon his own particular branch of trade. These re-ports are to be collected subsequently and ports are to be confected subsequently and sold by the Society of Arts, which has pro-mulgated the project. Some of the larger firms, however, are fighting shy, and instead are sending some of their men at their own expense, so as to have the benefit of their observations themselves—not the world at large. On the whole, I am afraid that the large. On the whole, I am afraid society's plan will prove a failure.

scortch PIG IRON
has remained pretty firm throughout the
week, but makers' brands have not quotably
advanced. Over 1570 tons have been carried advanced. Over 1570 tons have been carried into Connal's stores, making the quantity now there 178,930 tons, against 141,289 tons on the same date last year. This year's shipments up to date have fallen off 31,166 tons, the decrease being 21,000 in foreign and 10,000 tons in the coastwise consignments.

Writing from Glasgow on June 29, James Watson & Co. said: "The market for Scotch Fig. Iron Waynants has been remarked."

Writing from Glasgow on June 29, James Watson & Co. said: "The market for Scotch Pig Iron Warrants has been remarkably steady this week with very little change in price. On Monday business was done from 50/ to 50/1½, cash, also 50/6 three months. On Tuesday it was quiet at 50/1 per ton. On Wednesday it opened a shade firmer at 50/2 per ton, but relapsed to 50/1 per ton. Yesterday it opened at 50/1 and closed at 50/2 cash in eight days. To-day it has been listless at 50/1½ cash, closing sellers thereat, buyers 50/1 per ton. Shipments last week were 6326 tons against 13,342 tons in the corresponding week of 1877." We quote:

The second				 	-	-	-	,			- A.
								1	No.	ı.]
G. M. B., at G	lasgow			 					50	/	
Gartsherrie,	01			 					57	6	
Coltness,	4.4			 					. 6x	1	
Summerlee.	4.6			 					. 56.	16	
Langloan,	4.6			 					58	13	
Cambroe,	4.6			 					51	,-	
Calder, at Po	rt Dund	las	١	 					57	1	
Glengarnock,											
Egunton,	6.6								52		
Dalmellington	3. 66								51		
Shotts, at Lei	th			 				_	. 58	6	
Kinneil, at Bo	ness			 							
		-									

Mesers Wm Colvin & Co and John F. Swan & Bros. agree with the above prices in the main.

Last week's shipments from the principle Clyde ports included the following: From Glasgow: Demerara—Sugar-making machinery, £2927; 1¾ ton bar iron, £13; 6¼ tons malleable-iron tubes, £178; wroughtlife is fast becoming a burden. Clothes have become entirely superfluous, and there is here a languid sort of competition as to how much covering can be dispensed with without going about actually in puris naturalibus. Cases of sunstroke are very numerous, and thunderstorms are raging up and down in the most terrific and (literally) striking style. So great a heat has never before been known in the gountry during the month of June 100 tons har iron. \$\frac{\pmathcal{E}}{222}\$. Rouen \$-7\frac{\pmathcal{E}}{24}\$ tons wrought-iron tubes, \$\frac{\pmathcal{E}}{23}\$; \$\frac{\pmathcal{E}}{2}\$ tons cast-iron pipes, \$\frac{\pmathcal{E}}{222}\$. Rouen \$-7\frac{\pmathcal{E}}{24}\$ tons wrought-iron tubes, \$\frac{\pmathcal{E}}{222}\$ tons wrought-iron tubes, \$\frac{\pmathcal{E}}{222}\$. Rouen \$-7\frac{\pmathcal{E}}{24}\$ tons wrought-iron tubes, \$\frac{\pmathcal{E}}{222}\$. Rouen \$-7\frac{\pmathcal{E}}{24}\$ tons wrought-iron tubes, \$\frac{\pmathcal{E}}{222}\$ tons wrought-39 tons bar iron, £253; 134 ton wrought-iron tubes, £31: sewing machines, £300; 28 1/2 tons wrought-iron plates, £200. -3½ tons wrought-iron manufactures, £135; sewing machines, £2020; 42534 tures, £135; sewing machines, £2020; 425¼ tons iron castings, £2001; 4¼ tons bar-iron £32. Mediterranean—Sewing machines, £623; 95¼ tons iron castings, £916; 50½ tons wrought-iron tubes, £582; 3½ tons plate-iron, £27; rivets, £5; iron and steel manufactures, £70; machinery, £660. Brisbane—14½ tons iron castings, £131; 63½ tons ban iron, £35; 114 tons callenged. bane—14½ tons iron castings, £151; 63½ tons bar iron, £395; 11½ tons galvanized iron, £220; unenumerated iron manufactures, £125; machinery, £65; two locomotives, £3170. Oporto—360 tons rod iron, £2520; \$83½ tons malleable iron, £300. Calcutta—Bolts and nuts, £78; 2½ tons Calcutta—Botts and nuts, £75; 24 tons iron castings, £82; machinery, £6034; 16 tons bar iron, £90; 38 tons iron plates, £94; iron bridgework, £1000; 10½ tons galvanized iron, £190. Sjoberg—54 tons cast iron, £348. From Greenock: Bahia— Sugar-making machinery, £1920; cast-iron hollow ware, £23. Bremerhaven—new boilers, and parts of machinery, &c., £28,000. From Grangemouth : Rotterdam-123 tons iron castings, £124. BELGIAN COMPETETION
in Scotland is said to be fast losing ground.

It had its origin in an attempt to establish a trade direct between the manufacturer and the retailers without the aid or intervention of the factors or wholesale dealers, but the plan has proved altogether too costly by reason of the infinitude of small accounts and atomic orders, so that the Belgians are beginning to cry out enough and are graduNORTH OF ENGLAND

Mr. Waterhouse, the sworn accountant to the Northern Board of Arbitration and Conciliation, has just made his usual quarterly return, in which he sets forth the result of his examination of the manufacturer's books.
Although the return shows a marked decline in the iron rail trade, the tonnage of plates turned out exceeds anything before known, being close upon 115,000 tons, against 98,000 tons in the preceding quarter. There is a considerable depreciation in the average ne There is a selling prices of iron for the quarter, the decline being 6/8 per ton.

THE TRADES OF SHEFFIELD

are not largely altered, the end of the quar-ter being generally a dull period in the steel as well as in the ordinary iron trade. now people are particularly cautious. Sellers don't want to commit themselves lest trade should jump and prices go up, and buyers are something loth to enter into transactions which might overtop the market after the quarter days. The wire trade transactions which might over the that the tafter the quarter days. The wire trade is, perhaps, as well employed as any, and is being steadily developed. One house at Sheffield produces over 20 tons weekly, chiefly for the French and German umbrella. chiefly for the French and German unprella manufacturers. Steel wire of 13 gauge will bear a strain of 2300 pounds. Both Siemens and Bessemer steel are being rolled and drawn into wire—the former with encour-aging success. The Bessemer mills are fairly busy, although at some of them old wall orders are being nearly worked off. At fairly busy, atthough at some of them out rail orders are being nearly worked off. At Brown, Bayley & Dixon's the cupola fur-naces are now being heated by the waste gases from the convertors, with such success that the consumption of coke in the cupolas is reduced to 1% cwt. per ton of pig iron melted. Under Mr. Holland's very able management this large concern is rapidly coming to the top of the local tree. In cutlery there is a very fair amount of business in hand, much of the common class being spear, matchet and butcher knives for Australia, Australasia and South America, while the best pocket and table knives continue to be sent to the States, India and Canada in very considerable quantities. The that the consumption of coke in the cupolas Canada in very considerable quantities. The settlement of Cuban affairs has also induced a revived demand thence

STAFFORDSHIRE AND BIRMINGHAM.

In these districts-still exclusively devoted to ironmaking and even yet minus a single Bessemer converter—there is some speculation as to what may be the results of the forthcoming quarterly gatherings of the iron masters. Certain somewhat sanguine persons hold out the hope of a drop of 30/ 8 ton in list quotations for marked bars, which have for a long time been held at £8. 10/, and a corresponding reduction in sheets, hoops, angles and plates. This does not seem wholly probable, however, and a much more moderate estimate to count upon is a reduction of 10/ 2 ton. Even that has long been practically discounted, and to day marked iron can be had at £1 \$\mathbb{P}\$ ton lower than the official figures of the producers. What with one and another thing it is clear that South Staffordshire must look to its laurels. The furnaces there make good iron, it is true, but competition is gradually closing up all the old avenues, and steel is not the less surely driving all before it. The inland position of Staffordshire, however, is very disadvantageous for steel making, yet very disadvantageous for steel making, yet one would suppose this to be an evil capable of some mitigation, looking at what Sheffeld, also inland, has done and is doing. In the hardware departments the smoothness of foreign and domestic politics and the splendid weather have combined to inspire splendid weather have combined to inspire dealers and consumers with greater confi dence and hope than they have manifested for a long time past, so that there are many inquiries in the market that seem likely to lead up to the placing of orders. The Eastern markets are also coming forward and must of a certainty be large and good cus-tomers as soon as they shall have settled down once more into routine domesticity.

SOUTH WALES AND MONMOUTHSHIRE. From Cardiff last week the iron exports reached the improved total of 5007 tons, besides 100 tons of tin plate. From Newport besides foo tons of tan plate. From Newport 4172 tons of rails were shipped to foreign destinations. The Askside Iron Company are supplying a quantity of machinery and some locomotives to India; they ship these to Kurrachee. The annual report of

THE RHYMNEY IRON COMPANY
THE RHYMNEY IRON COMPANY
It says: "There is not a hopeful document. It says: "There has been a total loss on the twelve months' trading of £9626. The production of iron in has been a total nose that have trading of £9626. The production of iron in trading of £9626. The production of iron in the year amounted to 40,065 tons, and of steel to 7757 tons, against, in 1877, iron 47,700 tons, and steel 917 tons. For three-fourths of the year the works were kept in nearly full operation with orders for iron, gaged in manufacturing a double action 45 calibration in the last quarter the demand was so calibrate the calibration of the english market. This is a favorite arm with Englishmen. but in the last quarter the demand was so small and the sale prices had fallen to so low a point that the directors considered it the most prudent policy to stop the working of the forges, and of the principal part of the mills. The course of the trade since their report of June, 1877, has been continuously unfavorable. The sale price of iron rails has fallen below £5 per ton, and the four years that have elapsed since the the four years that have clapsed since the serious reaction that set in in 1874 are without parallel in the records of the trade, and have most severely taxed the resources of the manufacturer. In regard to the manufacture of steel, the new Bessemer plant was put into operation as reported in January hast. Its power of production has proved satisfactory. It is capable of turning out about 1000 tons of steel ingots per week, equal to a weekly make of about \$50 tons of steel rails, and this can be easily augmented with a comparatively small additional outlay. In reference to the trade in steel rails though the demand has exhibited that a preference for that material over iron is extending, it has not been sufficient to maintain a pro-portionate difference in the price of the two materials, in the face of the large production of the numerous firms who have during the last few years embarked in the trade. Their of the numerous firms who have during the last few years embarked in the trade. Their competition for orders has forced the market price of steel rails down to £5 10/ per ton, a rate that has generally been considered low for iron rails? for iron rails.

THE METAL MARKETS

have been tolerably steady on the week, and are not unlikely to grow stronger now that peace seems assured. The Ironmonger re-ports: "Copper closes fairly firm at £63. 10/

@ £64 for good ordinary Chili bars; £73. 10/ @ £74 for Wallaroo; £71. 10/ @ £71. 5/ Burra; £68. 5/ @ £68. 10/ English tough; and £75 @ £76 for good sheets. There is a considerable stock of Australian now in London, and large shipments are announced from Chili. Tin has become stiffer, on the whole, although at the close stiffer, on the whole, although at the close symptoms of weakness had manifested themselves. Australian and Straits run at about £62 @ £62. 5/; Banca, £64; English ingot, £65; bar, £66; and refined, £68. Tin plates are, if anything, a little firmer in price, owing to the commencement of the restricted production and to the receipt of favorable commissions from the United States. Prices are nevertheless not quotably changed. Lead has been in slightly improved request, and is now firm at £17 for English pig; £17. 10/W. B.; sheet and bar, £17. 15/; pipe £18 @ £18. 10/ and Spanish, £16. 7/6 @ £16. 10/ Quicksilver, Antimony, and Spelter unaltered."

The official report of the London Lombard Metal Exchange is: "Copper.—Firm; G. O. B. Chili bars, £6.4, spot, and about 300 tons for forward and arrival sold at £64. 10/ tons for forward and arrival sold at £64. 10/ @ £65; Wallaroo, £73. 15/ @ £74; Burra, £71; English tough, £69 @ £70; best se-lected, £70. 10/ @ £71. 10/; strong sheets, £75. Tin.—Quiet at £62 @ £62. 5/ for Straits and Australian; English ingots, £65. 10/ @ £66. Iron.—Scotch pigs, 50/1½ @ 50/2, cash. Lead.—Steady at £16. 17/6 @ £17. 2/6 for English pig; soft Spanish, without silver, £16. 12/6 @ £16. 15/. Spel-ter.—Business in ordinary brands, £17. 17/6, cash; £18 for forward delivery. Quicksilver. —£7 paid. Antimony.—£49 @ £49. 10/.

INDUSTRIAL ITEMS.

MATNE

The Patten Car Works of Bath have just ompleted two handsome passenger coaches a freight car and a baggage and smoking car for the Rumford Falls and Buckfield Railroad.

NEW HAMPSHIRE.

J. Henry Lovell is fully occupied at his foundry and shop, Manchester, having the contract for the wrought and cast ironwork for the new State prison at Concord.
S. C. Forsaith & Co., Manchester, report

S. C. Forsaith & Co., Manchester, report business better than last year. Some orders are now being filled for bolt-forging machines, and two of Palmers' power spring hammers have recently been shipped from their shops. This firm have a large trade in second-hand machinery, and their shipments South and West have been considerable of late.

Eaton & Aver of Nashua, manufacturers.

Eaton & Aver. of Nashua, manufacturer Eaton & Ayer, of Nashua, manufacturers of bobbins, spools and shuttles, seem full of business and are filling numerous orders for the Hamilton patent cop shuttle. Over 50 corporations are reported as having adopted this shuttle, and its various points of merit are given in the firm's circular. A foreign order has recently been filled for 100,000 bobbins, and another for a like quantity is just received.

MASSACHUSETTS.

O. Ames & Sons' shovel works at West Bridgewater are running five days in a

The Seymour Cutlery Company have re-cently received several foreign orders for their tailors' shears. The Hampden Emery Company at Chester have six months' orders ahead and are to

work on full time. The Lamb Knitting Machine Company of

Chicopee Falls have just made heavy ship-ments to Germany.

The Union Belt Company of Fall River, who shipped on request a sample of belting to Berlin, Prussia, about two months ago, have just received an order for 2000 feet.

The new machinery of the Hadley Thread Mill at Holyoke, which will increase the production of the mill 40 per cent., is now set up and will soon be in operation.

The Dover Stamping Company of Boston are setting a new steel boiler, 5 x 13 feet, built by Kendall & Roberts, Cambridgeport. It will be set with the Javis patent setting.

The Agawam Iron Company of Wareham have shipped during the past month over 300 tons of their tack plate. The increasing business necessitates their running part of the

The foundations are being laid at South The foundations are being laid at South Abington for a large building in which the Hendry Patent Axle Company are to carry on a heavy business in the manufacture of their specialty. The location is near the tack works of Brigham, Litchfield & Vining,

This is a favorite arm with Englishmen. The Gatling gun is being improved at the suggestion of French experts.

NEW YORK. A contract for furnishing complete two of the flouring mills recently destroyed at Minneapolis, Minn., has been awarded to the firm of John T. Noye & Son, of Buffalo.

of John T. Noye & Son, of Buffalo.
Sidney Shepard & Co., tinware manufacturers, Buffalo, report their trade quite as large as last season, but with smaller margins. At the manufactory they are running

full time, employing 300 men.

Messrs. Swett, Quimby & Perry molded and cast last week for the Bessemer steel works an anvil block that weighed over tons. The Empire is the only foundry in this city that has capacity for casting so large a piece of iron as this. A few years since Swett, Quimby & Perry cast a 27-ton block for the Messrs. Burden, which was the heaviest casting ever made in Troy.

Messrs. Copeland & Bacon of New York

are using the patent "bracket pattern" steam pump, made by John McGowan & Co. of Cincinnati in connection with their steam-

ower hoisting machinery.

Burdett, Smith & Co.'s foundry at Troy, which has not been running since July 4, will resume operations the early part of

The seythe works at Ballston last year manufactured 168,000 seythes and 2400 sickles-an unusually large showing for the

PENNSYLVANIA. A. Whitney & Sons' car-wheel works in Philadelphia cover 80,000 square feet.

Meller & Co., Reading, have commenced the manufacture of turbine water wheels invented in Canada. The Diamond Drill Company of Pottsville

have sent three of their drills to Victoria. Australia, and the men to work them.

The Roberts Machine Shop, Titusville, has made five engines to order for Southern customers to be used in operating cotton gins.

The Conestoga Lock Works, Lancaster, are running full force and full time on Scan-

dinavian jail or pad locks.

The new horse-shoe factory of the Cambria Iron Company, Johnstown, will soon be

bria Iron Company, Johnstown, will soon be ready to go into operation, the necessary machinery having arrived.

The steam engine and boiler works at Waynesboro, Franklin county, are still running to their full capacity. Over 100 workmen are employed daily at 11 hours per day, For the week ending at midnight on Saturday, 438 tons of iron were manufactured. urday, 348 tons of ivon were manufactured at the furnace of the Warwick Iron Com-pany, at Pottstown. This number excels by three tons the largest yield of the Warwick

Furnace in any previous week.

The Bloom Furnaces, Wm. Neal & Sons, proprietors, "chilled" and went out of blast on Wednesday the 10th inst. We understand they are cleaning out as rapidly as possible and expect to blow in again within

month. An attempt to cool off the blast furnace at the establishment of Stephen Robbins & Sons, Philadelphia, last Wednesday, resulted in badly scalding a number of employees.
John McChesney, superintendent, cannot survive, and John Russell, Patrick Walters,
Patrick Conners, Harry Ennis, John Gallagher and Hugh Keefe are among the seriously injured.

The first published report of the opera-tions of the beneficial fund of the Philadel-phia and Reading Coal and Iron Company, phia and Reading Coal and Iron Company, detailing the receipts and disbursements to the employees of the company at the collier-ies owned and operated by them, states that the receipts were \$2050.90, and the disbursements on account of injuries received by the members were \$1082.21. A balance of \$1384.74 remains to the credit of the fund.

A. F. Bordon, foreman of E. and G. Brooke's nail factory at Birdsboro, has designed and put in operation on several ma-chines an "improved feed," which is descnines an "improved feed," which is des-tined in a great measure to supersede the old style. By its use a number of bolts are dispensed with, and the "nipper rod" or "feed" proper is constructed on the swivel principle, which, when a premature grip oc-curs, allows the rod to turn, thus preventing straining the springs on the "barrel" or springing the gauge. Mr. Bordon has a patent now pending, having already secured a caveat.—Cor. of Reading Eagle.

We clip the following from the Sharon Herald of the 12th inst.: At the New Mill,

same as last week; guide mill, double turn; nail plate mill and nail factory, single turn. At the Old Mill (Westerman Iron Company At the Old Mill (Westerman Iron Company) up till Wednesday night turn, puddle and guide mills, double turn; hoop, bar and sheet mills, single turn; nail plate and nail factory off. All remained off until Monday of the present week, when all went on again. No signs of starting the Middlesex Mill. From Sharpsville down to Middlesex, including both places, there are six blast furnaces in and fifteen out; but the ins are doing as well as can be expected.

PITTSBURGH AND VICINITY.

Messrs. Curry, Mays & Co. will erect a foundry and machine shop at McKeesport.

Messrs. Mitchell, Stephenson & Co., of Pittsburgh, started up their stove foundry

on Wednesday the 10th inst.

The old glass factory, formerly managed by Plunkett & Ward, on the South Side, will be started up in a few days, under the new firm of Plunkett, Ihmsen & Co. Glass lamp chimneys will be manufactured.

The creditors of Reese, Graff & Woods failed to hold a meeting on Wednesday of last week, according to arrangement, and did not come together yesterday, as ex-pected, with a view of deciding upon accept-ing or rejecting the proposition submitted by the firm.

A pretty large force of men have been dis charged from the Keystone Bridge Works the company having put to work a hydraulic machine for riveting, which takes the place of hand work. Last Saturday evening 20 men were temporarily discharged from the locomotive works of Porter, Bell & Co.

Some days since the announcement was made that the National Tube Company, of McKeesport, contemplated the erection of a new rolling mill at that place. The McKeesport Times, says: But little has been heard of late of the proposed new rolling mill to be erected by the National Tube Works Company of this place. Although nothing definite has been done as yet in regard to selecting a site, we have it upon pretty good authority that the machinery for the mill is now under way, some of it in the East, some of it in the city and some at the company's works in this place. It is not probable anything will be done before September in regard to the location of the mill, and it is presumable that rather than be "gouged" in the purchase of a site, some other place than this will be agreed upon by the company. The National Company never does things by halves, and it is a settled fact that wherever the mill is put it will be a good one. Should it be McKeesport's good fortune to have it located within its limits, it just means employment for several

hundred more men.

Marshall Bros., Pittsburgh, have just received the contract from W. H. Henry, of Akron, Ohio, for two steam engines and a patent pasenger elevator for his new stor after a lively competition with Buffalo, Cin-cinnati and New York firms. The same firm have obtained the contract for supply-ing the Rochester Tumbler Works and the Stamm House, Wheeling, with patent ele-vators

vators. glass works of Doyle & Co., on the The South Side were destroyed by fire last Mon-day night. While the walls of the building are not badly injured the woodwork is totally consumed. There was a considerable amount of stock in the packing room, none of which was saved. The loss is estimated by Mr. William Doyle, a member of the firm, at from \$8000 to \$10,000, which is fully covered by insurance

WEST VIRGINIA

Work was resumed at the Ætna Mills, Wheeling, double turn last Friday.

The forge department of the Benwood Mill, Wheeling, resumed work on last Satur-

The La Belle Glass Works will start up

the latter part of the month.

The Wheeling Hinge Company made more goods during the six months ending July than in any previous six months in the his tory of the factory. Their product was \$84,855 and their sales \$68,494. In the first six months of 1877 the product was \$75,754 and their sales \$71,809. In common with the iron interests generally of the city no profit worth mentioning was made

The Hubbard Rolling Mill started Tuesday

morning, the 9th inst., after an idleness of several weeks.

Cincinnati has one of the largest stove foundries in the United States—that of Davis & Co., occupying the entire space from Third to Webb and John to Smith

Burke, McColm & Co. have lately set up at Portsmouth a wooden stirrup factory, which turns out from 500 to 600 dozen per week, all the work being done by machinery and in a manner lately patented by M. T. Burke, one of the firm, the block holding together the ends being replaced by an iron clamp, which at the same time prevents

The Mingo Furnace directors held a meeting at the works last week and made an assignment of all their personalty to George A. Dean for the benefit of their creditors. This personalty consists of a small amount of iron and other material, and also wagons, horses, tools, &c. The statement showed \$285,000 indebtedness, and nominal assets to within \$1500 of that amount. These nominal assets consist of the cost price for the two furnaces, tenement houses, coal the two furnaces, tenement houses, coal shaft, &c., represented on the books at their cost, but really worth very much less to-day. The supposed present value of the assets will leave an excess of liabilities of, say, \$200,000. The liabilities consist of \$67,500 \$200,000. The habitudes consist of \$07,500 first mortgages, \$62,500 seconds, and \$155,-000 of floating debt, making \$285,000. The largest creditor is the firm of Nimick & Co., Pittsburgh, some \$22,000. D. Megary & Co., of the coal and coke works at Steubenville, are also creditors to the extent of some \$17,000. Messrs. John McGowan & Co., of Cincin-

nati, have just shipped five of their new "Rival" steam "Bracket Pattern" Pumps to Mansfield, O.; two of the same to Owens, Lane & Dyer, Hamilton, O., and have sold quite a number to other parties, including

quite a number to other parties, including one now in successful operation at the Lyons brewery, pumping condensed steam and utilizing the same. This pump is giving full satisfaction and is highly appreciated.

Messrs. Lane & Bodley, engine builders and machinists, of Cincinnati, have recently shipped one of their hub-mortising machines to Manchester, England. They have shipped a number of these machines to European and other foreign parts during the year. They have also just shipped one of their engines and boilers with John McGowan & Co.'s new steam pump attached, and are preparing several others for shipment with this new pumping attachment

MISSOURI.

The Hamilton Furnace property at Sullivan, including 7000 acres of land, was sold recently under a foreclosure of mortgage. The mortgage was for \$20,000, but the property sold for \$11,500. The land is valuable only for the timber upon it, which can be used in making charcoal for operating the furnaces

The Indianapolis Rolling Mill Company are considering the question of converting their works into a steel rail rolling mill. The success of the Chattanooga mill and the proscess of the Chattanooga min and the pros-pect for a constantly increasing demand for steel rails, to relay the roads now in exist-ence as the iron rails wear out and to sup-ply the new roads which will be built, are points which are considered favorable to the

The Elgin Watch Factory is at present running steadily with a force of about 750 hands, and turning out from 300 to 350 finished watches per day.

Bonnet, Duffy & Co., stove manufacturers,

of Quincy, up to May 23 had run continuously for fifteen weeks without losing a heat. They will turn out more stoves this year than in any previous year. They employ a force of from 75 to 80 men.

KENTUCKY.

The Norton Iron Works rolling mill and nail factory quit work on the evening of the 3d inst. and continued off until Monday, the 8th, when all departments went to work again and are now in full blast.

Mr. Lantz, formerly of the McKeesport (Pa.) Locomotive Works, has recently built for a street car line running between Newport and Dayton, Ky., a dummy engine and car, which combine in the construction of their machinery some new and novel improve-ments, and embrace one of the new "Bracket Pattern v pumps now being made by Messrs. John McGowan & Co., of Cincinnati.

MICHIGAN.
As an illustration of the difference tween then and now, we will say that late in the fall of 1872 the Lake Superior Iron Company found itself compelled to charter Company found itself compelled to charter an extra vessel to earry a cargo of ore from Marquette to Cleveland, as the boats running for the company could not get all the ore to market. For the transportation of this cargo the company paid \$0.50 per ton, 50 cents more than the best quality of hard ore can be sold for at Cleveland to-day.— Mining Journal.

The following, from the Marquette Mining Journal, is a statement of the lake shipments of ore and pig metal in gross tons for the season up to and including Wednesday, July 10:

FROM MARQUETTE.

Rolling Mill	0.000	Cleveland	36,82
Take Generales	9,309	Humboldt	
Lake Superior	42,599		
Mitchell		McComber	
Edwards	4,707	Marquette	
Republic		Winthrop	1,64
Champion	93,756		
Keystone	1,674	Total	994,59

		L'ANSE.	
Michigamme			13,981
Stewart			1,130
			15,051
1	ROM E	SCANABA.	
Jackson	25,443	Mitchell	206
South Jackson	4,819	Cambria	1,116
New York	9,667	Goodrich	2,200
Cleveland	1,837	Bessemer	3,377
Angeline (hard)	12,771	Smith	4,697
(hematite)	1,393	Vulcan	13,841
Barnum	9,082	Quinnesec	9,864
Saginaw	31,405	Breen	680
Salisbury	19,160	Cleveland (hem'te)	
Palmer	4,629	Pendill	1,170
Michigamme	7,292	Howe	791
Superior (hard)	5,969	N. York (hematite)	1,495
Emmett McComber	1,357	Model	-
Winth noon	3,076	Total	179,898
Winthrop	1,419		
~ ~ ~ ~	Pig	Iron.	
Carp River Furnac	0		1,768
Pioneer Furnace			
PD-4-1			
Total			2,288
		vrts.	
Carp River Iron Co			100
	-		
-	-		

French Views of American Competition with Great Britain.

In the report of the Committee of Inquiry appointed by the French Senate to inquire nto the causes of the present industrial deression in that and other countries, we find

the following:

The prolonged crisis in Europe has been the result of an excess of production over consumption, which excess in its turn has been brought about by the great industrial expansion in England and on the Continent subsequent to the war of 1870-71. On the other hand, the United States has closed her markets; under the cover of protection she has reared a most powerful industry, which in nearly every article begins to com with the manufactures of England and rope the world over. This is, in fact, an economical revolution which baffles all calculation. We need but read the English newspapers, the English consular reports received from the United States and those of the British chambers of commerce, in order to at once fully appreciate the excite-ment which exists on the subject in Great Britain. England was fully equipped with the necessary machinery for stocking the world with its manufactures. The English were sanguine enough to hope that the world's raw produce would flow into their country from all quarters, to be returned in the manufactured state from their great workshops. In order to carry out this prob-lem they had the vessels to bring the cotton, the cres, wool, &c., and would return them laden. They had the cheapest coal and iron. England's spindles, looms and workshops were countless in number, and they are so still. When Cobden had made free traders out of his countrymen who had been clinging to protection for centuries, he did so animated by some such gigantic project, and England may well erect statues to do him honor. But could Cobden foresee that the day would come when the Americans would resolve upon spinning and weaving their own cotton instead of shipping it to England to be converted into manufactures? Could he have foreseen that the Americans would at some future day close their marwould at some future day close their markets, and having iron, coal, cotton and other raw material all on the spot, build manufactories by the thousand? Had he any conception of the possibility of the Americans one day possessing cotton mills with 400,000 spindles and 3500 looms in a single factory, as they may be met with at Lowell; that one machine shop would turn out 450 locomotives in a single year; in other words, that this new manufacturing country would become the rival of England, send its cotton goods to Manchester and watches to Geneva? England, after reaping great advantages from the new politioneconomical system inaugurated by her, has now found her rivals in the Americans, in her own subjects in India and, in the metalher own subjects in India and, in the metal-lurgical branch, in Germany.

Nailmakers' Strike in England.-Lox-Don, July 16.—The nail makers, to the number of 10,000, in the Old Hill, Dudley, Rowley and Hale's Owen districts have struck for an advance of 30 per cent. in their wages. Ten thousand more will join the strike by the end of the week.

President Gowen does not seem to be very popular with the Thugs of the anthracite district, which is not to be wondered at. The Sunbury American says: Monday evening the little "Gem," a small engine used on the Philadelphia and Reading Railroad for conveying the officers from point to point on that road, arrived here in advance of the excursion carrying some of the officers the excursion carrying some of the officers of the road. About 10 o'clock it started back to Shamokin carrying Superintendent Olhausen, Captain Alderson, Paymaster Jones and others to Shamokin. When the party arrived at the switch this side of Cameron Colliery they found, when too late, that it had been turned, and the "Gem" ran off the track and was considerably weekend. off the track and was considerably wrecked. As soon as it got off the track a party lying As soon as it got on the track the party, in ambush commenced stoning the party, and injured the fireman seriously. The party supposed, no doubt, that President Frank Gowen was on the train, as they have made repeated threats of vengeano The switch was turned for the purpose of wrecking the engine, as no train had passed over it after examination by the watchman after the last train passed over the road in

Mr. Homer Morgan, the veteran real estate owner, remarked last evening that he was amazed on observing the number of fine dwellings in progress in the best parts of the city. Very many, he said, are improving property which they have long held vacant, in anticipation of better times coming, but judging from his experience in 1857, we must expect fluctuations in value for a year or more before settling down on a substanwho pon me

Acl

G

But

Axe

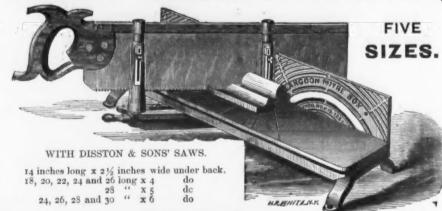
We learn that the steamer John Bramhall is detained at New Haven with her cargo of \$2,000,000 in fire-arms and ammunition, awaiting advices from Constantinople relative to insurance

THE LANGDON MITRE BOX COMPANY,



Falls, Mass.,

Sole Owners and Manufacturers of the LANCDON ADJUSTABLE MITRE BOX,



L. COES'

L. COES & CO.,

Worcester, Mass.



We invite the particular attention of the trade to our New Straight Bar Wrench, widened, full size of the larger part of the so called "reinforced or jog bar." Also our enlarged Jaw, made with ribs on the inside, having a full bearing on the front of bar (see sectional view), making the jaw fully equal to any strain the

bar may be subjected to.

These recent improvements in combination with the nut inside the ferrule firmly screwed up flush, against square, solid bearings (that cannot be forced out of place by use), verifies our claim that we are manufacturing the strongest Wrench in the market.

We would also call attention to the fact, that in 1869 we made several important improvements (secured by patents), on the old wrench previously manufactured by L. & A. G. Coes which were at once closely imitated and sold as the Genuine Wiench by certain par-ties who seem to rely upon our improvements to keep up their reputation as manufacturers. to keep up their reputation as manufacturers, and although the fact of their imitating our goods may be good evidence that we manufacture a superior Wrench, we wish the trade may not be deceived on the question of originality. Trusting the trade will fully appreciate our recent efforts, both in improvements on the Wrench and in the adoption of a Trade Mark, we would caution them against imitations. None genuine unless stamped;

"L. COES & CO."

Warehouse, 97 Chambers St., & 81 Reade St., N. Y. HORACE DURRIE & CO., Sole Agents.

EXCELSIOR WRINGERS



FOR STATIONARY TUBS.

They are made for use on square tubs, such as are principally used in cities, and are the only Wringers especially adapted for that purpose.

Send for an illustrated price list to the manufacturers,

BAILEY WRINGING MACHINE CO.,

No. 99 Chambers Street, New York.

ALSO MANUFACTURERS' AGENTS FOR

Defiance Metallic Planes, Simpson's Adjustable Vises, American Meat Choppers,

Silver's Stuffers and Presses, Domestic Ironing Mangles. SPECIAL QUOTATIONS ON THE ABOVE COODS FOR EXPORT.



With our present large variety and constant additions of new P are enabled for the Season of 1878 to meet the requirements of all. To the Deale who is desirous to secure the Best Stoves in the market, we would solicit he correct To the Dealer pond with us and order Samples which we will guarantee to fully meet all recom-

We manufacture Stoves for burning all kinds of fuel. THE GARLAND BASE BURNER,

Acknowledged Favorite, will appear for season of 1878 with entire changes, which cannot fail to make it the Leading Base Burner.

Send for descriptive catalogue, price list, &c.

W. Bradley's Edge

Butchers' Choppers, Axes and Hatchets, Grub Hoe and Mattocks Mill Picks Box Chisels and Scrapers

Ring Bush Hooks Axe Eye Bush Hooks, Socket Rush Hooks. Watt's Ship Carpenters' Tools, Coopers' and Turpentine Tools, FOR SALE BY Carpenters' Draw'ag Knives

MARTIN DOSCHER, Agent, 96 Chambers Street, N. Y.

NATIONAL Horse Nail Co.

FINISHED

[BRIGHT OR BLUED]



ese nails are made of the best brands of NOR-WAY IRON, and are guaranteed to be equal to any in the market.

NATIONAL HORSE NAIL CO., VERGENNES, VT.

HORACE DURRIE & CO., Agents,

No. 97 Chambers St., New York CHAS. E. LITTLE, 59 Fulton St., N. Y



Solid Cast Steel Augers & Reamers For Boring PUMP LOGS. All sizes in stock Socket Shanks, Ring Handles, and Connecting Rods for the above to order. Also Tenoning Tool for joining log ends. Coopers' and Staters' Tools Tool Chests. Tools for all trades a specialty.

PUTNAM'S HOT FORGED & HAMMER POINTED Horse Shoe Nails.



Made from the best of Norway Iron. Nail. For sale by the generally.

PUTNAM NAIL CO., P. O. Address, Neponset, Mass.

PATENT CONVEX Fluting & Smoothing Iron.



1st. It can be used as an ordinary Smoothing Iron nd. It is a Fluting Machine as well as a Smoothing Iron. 3d. The Fluting Attachment being made of brass, and convex in form, it has all the advantage of the crank machine. 4th. It combines the two articles in one, taking up the room of but one machine, and is always ready for use.

A. A. WEEKS, Manufacturer, No. 82 John Street, New York

TACKLE BLOCKS BURR & CO.,

Manufacturers of Waterman and Ru Patent Iron Strapped Blocks. ROPE STRAPPED BLOCKS.

31 Peck Blip, New York,



HORACE DURRIE

WARDED TO WM. HASSALL, WIRE NAILS Cocutcheon Pins

ESTABLISHED 1850. WM. HASSALL,

American and French Wire Nails

Molding and Finishing Nails, with or without heads. Brush Makers', Upholsterers', Cigar Box, Basket, Chair and Undertakers' Finishing Nails a specialty. Shoe Nails of Brass and Iron. Bright Iron Rivets. Brass and Iron Escutcheon Pins, with flat, round and fancy heads, all sizes on hand and to order.

OFFICE AND WORKS: Nos. 63 & 65 Elizabeth Street, New York.

CHAMPION HOG RINGER RINGS and HOLDER. points in the ne





HOG AND PIG RINGER and RINGS Only single Ring in he market that closes on the outside of the

CHAMBERS BERING & QUINLAN, Exclusive Manufacturers Decatur, III

DRAW-UP" PRESSES.

rices much lower than other styles.





Square Press, for Cold Meats, &c.

Drug Presses, Cider Presses, Wine Presses, &c.

Mohawk & Hudson Mfg. Co., WATERFORD, N. Y. WATERFORD, N. Y.





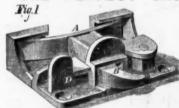


Lard and Tallow Press.

Compare with other styles of Presses. Circulars on applicatio

NEW YORK WAREHOUSE, 100 Chambers Street.

THE PERFECT SASH TIGHTENER AND LOCK.



Manufactured entirely from Malleable Iron, Burglar Proof, Anti-Rattling, Draws Sash to Exact Center. No Springs to Get out of Order.

The Best in the Market.

METALLIC CLOTHES PIN.



For either Wire or Rope Line, Will securely hold any article, from a silk handkerchief to a carpet. No article can be blown away. Does not soil the clothg. Manufactured by
CLARK & SMITH, Patentees, Chester, Orange Co., N. Y.
SOLE AGENTS,

I. I. BROWER & SON

286 Greenwich St., New York,
Who keep a general assortment on hand for the country trade. Jowett's Horse Rasps, 14, 25
and 16 inch, Maharay's \$10 Tire shrinker, Heller's Rasps. Send for Circular.

CHAMPION

A NEW PROCESS. The best, toughest, most reliable Horse Shoe Nail yet made, superseding others wherever introduced.

Pointed, Finished and Ready to Drive. QUALITY FULLY GUARANTEED. Orders filled promptly and at lowest rates. Send for Price List.

CHAMPION STEEL HORSE NAIL CO., APPLETON, WISCONSIN.





D. K. MILLER LOCK CO., 712 Cherry St., Philadelphia.

(Tipped back for filling.)

Greatly improved. Prices reduced. As now made it is the best nd most economical Pad Lock for all uses extant. Appreciated by ll who use them. For simplicity, compactness, durability, contenience and security it has no equal. Springs now made from the elebrated Phosphor Bronze. We make these Locks with Mastersys when so ordered. Largely used by the U. S. Government, Railbads, Corporations, etc., etc. Samples of 2½ in, size sent per mail on ecceint of one dollar.

eld, CO., FOOS AST.



ISRAEL H. JOHNSON, JR., & CO., TOOL & MACHINE WORKS,

Manufacturers of Engine, Brass Finishers', Wood Turners', Amateurs' & Jewelers' LATHES, Silde Rest, Screw Machines, Terret Heads, Screw Presses, Screw Clamps, Lathe Carriers, &c. 440 N. 12th St., above Noble, Philadelphin, Pa. Israel H. Johnson, Jr. Joshua R. Johnson, Jr.

PHILADELPHIA HYDRAULIC WORKS. Evelina and Levant Sts.,

General Machinists and Manufacturers of

Steam Pumps and Steam Fire Engines.

Manufactured by

Crane Bros. Mfg. Co.,

CHICAGO.



The Atlantic White Lead and Linseed Oil Co.,

White Lead (Atlantic), Red Lead, Litharge & Linseed Oil. ROBERT COLCATE & CO., 287 Pearl Street, New York

John T. Lewis & Bros., No. 231 South Front St., PHILADELPHIA.



TRADE MARK. MANUFACTURERS OF

Pure White Lead, Red Lead, Litharge, Orange Mineral, Linseed Oil, AND PAINTERS' COLORS.

THE BEST KITCHEN AND TOILET WARE.

It is made of Decarbonized Iron and Covered with

a Perfect Enamel of Unquestionable

Purity.



Its Merits have been tested and are

vouched for by the **Foremost Chemists** and Experts in the

Land.

Stamping Co., St. Louis, To Beekman Street, New York:
PRICE LISTS. DISCOUNTS AND TESTIMONIALS FURNISHED THE TRADE.

PATENT Corrugated Bottom COAL HODS. Black and Galvanized

PATENT Oriental Funnel COAL HODS.



F. HABERMAN,

No. 294 Pearl Street, .

TIN WARE.

The Magic Carriage & Wagon Jack.



MISHAWAKA, IND.

Sargent & Co.,

THE VICTOR PAT. ADJUSTABLE PIPE WRENCH.



S. P. LATHROP PAT. OCT.19 1875 It is the most effective; quickest adjusted; works easier; holds firmer; tronger; more durable, yet lighter, than any other Pipe Wrench.

Send for Price List to

Two sizes, takes from 1/2 to 4 inch pipe.

LATHROP & CO., Newark, N. J.

Or to their General Agents:

New York.

READING IRON WORKS,

L. PACKARD,
HUNTINGTON, HOPKINS & CO.,
Boston.

Boston.

HUNTINGTON, HOPKINS & CO.,
Milwaukee,
M



Compact, Practical, Durable and

Economical. Acknowledged to be the best in use. This boiler stands unrivaled. MANUFACTURED BY

Binghamton Iron Works, Binghamton, N. Y.

Stationary Engines and Boilers.

Also Machinery for Mills of all kinds and Tanneries. Also their celebrated Bark Mills, acknowledged to be the best. Send for reduced price list circular.

JOHN JEWETT & SONS, Brooklyn White Lead Co. Manufacturers of the well-known brand of



SO MANUFACTURERS O LINSEED OIL. 182 Front Street, NEW YORK.



TRADE MARK. White Lead, Red Lead & Litharge.

89 Maiden Lane, NEW YORK. FISHER HOWE, TREASURER,

The Iron Age Directory

and	Index	to	Adve	ertisen	nents.
Agricultus Hubbard	al Imple	men E. 22	ts.		PAGE
Air Comp	ressors.	Wate	r. Broo	klyn, N.	Y
Antie Frici	ml S. Phi	ladel	phia		4
Anvils, Ma Fisher & N Richardso	nufactur Norris, Tr on Mfg. C	entor	n, N. J. orceste	r, Mass.	
Armer Pla Moorhead Augers, B	& Co., P	Man	argh, P	arers of.	
Chark Win Harlow C. Ives Wm. Jennings	A. & Co., A. & Co., C. E. & Co.	Brid New	lgewate Haver Chamb	er, Mass , Conn. oers, N	
D. R. Bart	on Tool C	o., R	ochest	er, N. Y	
Axies, Sp. Brown D.	rings. & Arthur &	Coho	es, N. 1 Manufa Fisher	cturers ville, N.	of. H 4
Cook R. & Hotchkiss Seldon &	Sons, Wi Guy C., Co., Aubi	nste Field irn,	d Con	Brookly	of. H. 4 In, E. D. 3
Wilson, W	Valker &	Co.,	Pittsbu	rgh, Pa	port, Conn;
Bed Scre	o., Birmi	er og. ngha	m, Con	m	
Bullock T Newcomb Scott Geo.	Bros., 58 M., Chic	eland Wa ago,	i, O ter, N. Ill	Ÿ	
Bells (Sle	igh.)	Ea	stham	nton. Co	nn
Forepaug Bjrd Cage	r Bros., 41 h Wm. F.	2 N. Jr.,	& Bros	adelphi , Philac	a 3 lelphia 3
Bit Brace	es, Manu	facti	Cham	hers N	V a
Blocks, T Burr & Co Penfield E Providence	Cackle, J., 31 Peck Block Wor ce Tool Co	Make Slip rks, I	N. Y ockpo oviden	rt, N. Y.	
Blowers, Keystone	Portable	Fore	ge Co., I	Philadel	phia
Chambers Bolt Cutt Howard I	Bros. & ers. ron Work	Co.,	Philade	lphia	
Eagle Bol	t Works.	Phi	ladelpi	hia	
Horay.					
Brass Bu	tts, Mak	ers c	f		
Ansonia E Bridgepor Brass Goo	t Brass (ds Mfg. C	Cop	per Co. Bridger Bo Pear	ort, Co.	, N. Y
Holmes, E Manhatta Miller Edv	Booth & H n Brass C w. & Co.,	ayde 0., 8:	ns, 49 Read	Chambe e. N. Y. N. Y.	rs, N. Y
Plume & Scovill Mit Waterbur	Atwood B g. Co., 421 y Brass C	Bro	co., 80 Come, No Broad	hamber Ydway, N	, N. Y
Reeves Ps Bridge B	ul S., Ph uilders.	llade	lphia	Co., s De	4
Buck Say Boynton I Butcher	E. M., 80 B	eekn	an, N.	Y Manuj	facturers of.
Butts and American Sabin Mfg	d Hinge Spiral Sp Co., Mo	ring ntpel	Butt Clier, Vt	0., 82 Bee	kman, N. Y.4
Semple & Stanley W Union Mfg	Birge Mf Yorks, Ne g. Co., 98 (g. Co w Br Cham	itain, C bers, N	ouis, Mo lonn	
Victor Sew Carriage Townsend	Bolts, Wilson	hine Make & Hu	Co., Mi	Philade	y, N. Y. facturers of. 3 kman, N. Y. 1 7 n, Conn. 2 sliphia. 1 1 1 1 1 1 1 1 1 1 1 1 1
Hayden & Smith H. I Carriage	Smith, A.D. & Co., Spring	Plan	rn, N. Y	Conn.	3
Car Axle Roberts A Chains.	& P. & C	0., 26	ied), Ro is S. 4th	ome, N.	lelphia
Chilled R Totten &	forton, P olls (He Co., Fuito	ittsb illov n For	urgh, I	a Pittsbu	lelphia
Buck Bros Civil Eng Whinery	., Milibur incers. S., Chatta	y, M	ass	a	
Clocks, S Cary & Mc Dunbar B	ben, 234 W ros., Brist	ol, C	onn	*********	
Brower J. Coal, Min Pardee, A	I. & Son, ers of. & Co., 11	286 G	reenw	ich, N. 1	city, Tenn.
Tennessee The Hobol Coal Vas	ken Coal	Co.,	ersey	City, N.	City, Tenn3
Coffee and Lane Brot Enterpris	d Spice hers, Mill e Mfg. Co	Mill broo	k, N. Y	hia, Pa.	J
Bemiss & Coopers' D. R. Bart	Call Ham Tools, on Tool C	w. &	Tool Control	nanufac o., Sprin rs in. er, N. Y.	gfield, Mass.
Copper. Pope, Col. The New	e & Co., B	altin	n, N. Y.	d	N. Y
Corn Hus Chambers Corrugat	kers. s, Bering ed Iron.	& Qu	inlan,	Decatur	N. Y
Crucibles Wile, Sied	Manufalei & Co.,	totur 709 M	ers of. larket,	Phila	ey, N. Y3
Smith & S Curry Co Hazelton	mbs, Mo D. W. & C	Co., nufo	21 Cor teturere hiladel	tlandt s s of. lphia, Pa	3 t., N. Y 4 4 4 3 3 N. Y 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Lawrence Cutlery, Boker He	Curry Co Importers rmann &	omb of.	Co., 382	onn ad av.,	N. Y
Clatworth Fisher Jo Friedman	by F. & W 8. S., 411 C in & Laut	., 82 omn erjui	Chamb nerce, F ng. 14 W	ers, N.) hila varren,	N. Y.
Burkinsh Goodell C Meriden C	aw Aaron ompany, cutlery Co	Antr	pperell im, N. Chamb	, Mass H ers, N.	
Naugatuc New York The Fran The Lam	K Cuttery K Knife C Cuttery son & G	Co., W	89 Cha alden, Bridger ow Mr	mbers, I N. Y port, Co.	N. YI
Different Yale Lock	ial Pull Mfg. Co.	ey 1	Blocks	rs, N. Y	······································
Haight, J. Discount Jennings	Tables S. H., De	heste	r, N. Y	nn	
Dog Muz Merserea Door and Dunne P.	u W. T. & Gate S R., 182 Fr	J., 32	Brone	lway, N	. Y
Quackent Van Wag Door Sto	oush, Tovoner & W	vnse illiai Hol	nd & Cons, 82 I ders.	o., 59 Res leekmai	ade, N. Ys
Drill Cha Cushman Lamberty	A. F., Ha	wor Wor	rgn, Pa icturer d, Con ks, Lar	s of. nnbertvil	le, N. J
Bickford Thorne, I	Machine H., Cinci De Haven	es, J anati & Co	Makers , O o., Phili	of. adelphia	lie, N. J
Boker He Rose Wm	rmann &	Co., i	or and t Phila	103 Dua delphia	ne, N. Y Pa
Edge Too The D. R.	Barton T	ew r	o., Roc	hester,	N. Y
Elevator Crane Bro Mason Vo	s, Maker os. Mfg. Colney W.	o., C	hicago, Provi	Illdence, I	N. Y
Elevator Rivet Buc Rowland	Bucket cket Co., F. F., Br	Chica cokly	go, III.	a, Pa	
Emery W Lehigh V Engineer	heels. alley Eme s. Mach	ery V	Vheel (o., Wei	ssport, Pa
burg, T Todd Jos Engines,	enneph C., 10	Barc	lay, N.	Y	south Pitts
Engines (Baldwin Engines	Locomoti Locomoti Steam	tive ve W	orks, F	ewis, N	. Y
Ervien Cl Farquhar Fitchburg	A. B., Yo	Co., rk, I ngin	Kensin a e Co.,F	gton, P	hila3 Mass3
Lovegrov Payne B.V : hapley &	e & Co., F W. & Sons Wells, B	hilad Cor ingh	lelphia ning, N amton.	Pa Y. N. Y.	phia, Pa
				- 444	

т	ני
Expert Factors. Jennings S. H., Deep River, Conn	К
Faucets, Brass, Makers of. McNab & Harlin Mfg. Co., 56 John, N. Y	L
Penfield Block Works, Lockport, N. Y	L
Faucets, Self-Measuring, Makers of. Enterprise Mfg. Co., of Pa., Phila. and N. Y36 Felting.	L
Felting. Crane & Chapins, 31 & 33 Courtlandt, N. Y	L
Files, Importers of, Carr J. & Riley, 83 John, N. Y. Fisher Joseph S, 411 Commerce, Phila. 11 Frasse Peter A. & Co., 95 Futton, N. Y. 8 Moss F. W., 85 John, N. Y. Sanderson Bros. & Co., 16 Cliff, N. Y. 34 Files. Manufacturers of,	L
Sanderson Bros. & Co., 16 Cliff, N. Y	L
Sanderson Bros. & Co., 10 Cliff, N. Y. 34 Files. Manufacturers of. American File Co., Pawtucket, R. I. 5 Amburn File Works, 86 Chambers, N. Y. 8 Barnett G. & H., 41 and 43 Richmond, Phila 8 Chalmers & Murray, 76 Reade, N. Y. 8 Disston Henry & Sons, Phila 20 Draper C. T. & Co., Sing Sing, N. Y. 8 Everhart James M., Scranton, Pa 42 Heller & Bros., Newark, N. J. 8 Johnson & Bro., I Commercial, Newark, N. J. 8 McCaffrey & Bro., Ty2 and 1734 N. 4th, Phila 8 Paul Chas. B., Williamsburgh, N. Y. 8 Fire Brick, Makers of. 8 Fire Brick, Makers of. 8	1
Disston Henry & Sons, Phila. 29 Draper C. T. & Co., Sing Sing, N. Y. 8 Everhart James M. Scranton, Pa. 42	1
Heller & Bros., Newark, N. J	7
Paul Chas. B., Williamsburgh, N. Y	M
Paul Chas. B., Williamsburgh, N. Y. Fire Brich, Makers of. Borgner & O'Brien, Philadelphia, Pa. Brooklyn, Clay Retort and Fire Brick Works, Van Dyke St., Brooklyn, N. Y. Gardner, Stuart & Co., Pittsburgh. 19 Hall A. & Sons, Perth Amboy, N. J. 10 Hall A. & Sons, Buffalo, N. Y. 10 Maurer Henry, 418 East 23(4, N. Y. 11 Newton & Co., Albany, N. Y. 12 Watson John B., Perth Amboy, N. J. Weber Adam, 63g E. Son, Troy, N. Y. Weber Adam, 63g E. Isth, N. Y. Flint and Emery Paper and Cloth. Beeder, Adamson & Co., 23 Market, Phila	1
Hall A. & Sons, Perth Amboy, N. J	DE
Maurer Henry, 416 East 23d, N. Y. 19 Kreischer B. & Son, 58 Goerek, N. Y. 19 Newton & Co., Albany, N. Y. 19	M
Valentine M. D. & Bro., Woodbridge, N. J	M
	M
Barnum E. T., Detroit, Mich	M
Burger & Baumgard, 98 Duane, N. Y	M
The American Machine Co., Philadelphia35 Weeks A. A., 82 John, N. Y25	M
Forges. Portable, &c. Keystone Portable Forge Co., Philadelphia40 Fossiliferous Ores.	1
Fossiliferous Ores. Brown T. J., Rockwood, Tenn	1
Whitehead Bros., 517 W. 15th, N. Y	M
Furniture Springs. Carcy & Moen, 234 W. 29th, N. Y. 3 Haigh Loyd J., St John, N. Y. 2	M
Haigh Loyd J., Sr John, N. Y	M
Grain Cradles. Grant Fan Mill and Cradle Co., Melrose, Rensselaer Co., N. Y.	M
Grindstones. Wilson & Hughes Stone Co., Cleveland, O	M
Grindstones. Wilson & Hughes Stone Co., Cleveland, O	M
Windmuller Louis & Roelker, 20 Reade, N. Y20	M
Gunpowder, Makers of. Kneeland F. L. (Dupont) 70 Wall, N. Y	M
Hardware Commission Merchants. Biglin Philip S., 100 Chambers, N. Y	-11
Hardware Commission Merchants Hardware Commission Merchants High Philip S., 100 Chambers N. Y.	N
Hardware Dealers. Lloyd, Supplee & Waiton, 625 Market, Phila	N
Hardware Importers. Boker Hermann & Co., 101 Duane, N. Y	N
Hardware Importers. Boker Hermann & Co., 101 Duane, N. Y. Boker Hermann & Co., 102 Duane, N. Y. Son & Co., 102 Duane, N. Y. Van Warf, Son & Co., 24 and 150 Duane, N. Y. Windmulier Louis & Roeleker, 20 Reade, N. Y. Hardware, Wans & Roeleker, 20 Reade, N. Y.	N
Windmulier Louis & Roelker, 20 Reade, N. Y. 20 Hardware Manufacturers. American Spiral Spring Butt Co., 82 Beekman, N.Y. 42 Clark & Co., Buffalo, N. Y. 26 Coulter, Flagier & Co., 87 Chambers, N. Y. 26 Coulter, Flagier & Co., 87 Chambers, N. Y. 26 Cowles Hardware Co., Unionville, Conn. 13 Enterprise Mfg. Co., Phila. 36 Haberman, F., 204 Pearl, N. Y. 36 Lloyd, Supplee & Walton, 22 Market St., Phila., Pa. 35 Miller's Falls Mfg. Co., 74 Chambers, N. Y. 31 R. Bliss Mfg. Co., 74 Chambers, N. Y. 31 R. Bliss Mfg. Co., 74 Chambers, N. Y. 34 Rassell & Erwin Mfg. Co., New York 10 Shepard Hardware Co., Buffalo, N. Y. 33 Stanley Works, New Britain, Conn. 12 Union Mfg. Co., 20 Chambers, N. Y. 7 Van Wagoner & Williams, 82 Beekman, N. Y. 42 Hardware Specialties.	N
Coulter, Flagler & Co., 87 Chambers, N. Y	N
Haberman, F., 204 Pearl, N. Y	N
Pratt & Co., Buffalo, N. Y	N
Shepard Hardware Co., Buffalo, N. Y	1
Van Wagoner & Williams, 52 Beekman, N. Y	1
Spencer & Underhill, 94 Chambers, N. Y	2
Covert Mfg. Co., Troy, N. Y	0
Hay Knives. Holt Hiram & Co., East Wilton, Me	0
Hinges, Lowis, Oliver & Phillips, Pittsburgh, Pa. 13 Scovill Mfg. Co., 419 and 421 Broome, N. Y. 35 Stanley Works, New Britain, Conn. 12 Hog Ringers.]
	P
Crane Bros., Mfg. Co., Chicago, Ill	P
Hoisting Machines. Harrington Edwin & Son, Philadelphia, Pa	P
New York Handle & Mallet Works 45 F Houston -6	P
Horse Nails, Makers of, Ausable Horse Nail Co. 4 Warren, N. Y	92.02
Globe Nail Co., Boston, Mass. 39 FP Horse Nail Co., Cleveland, O., 39 National Horse Nail Co., Vergennes, Vt. 39	P
Horse Nails, Makers of, 8 Ausable Horse Nail Co., 4 Warren, N. Y. 8 Champlon Steel Horse Nail Co., Appleton, Wis. 26 Globe Nail Co., Boston, Mass. 39 FP Horse Nail Co., Cleveland, O. 39 National Horse Nail Co., Vergennes, Vi. 25 Northwestern Horse Nail Co., Chicago, III 39 Platt & Co., Buffalo, N. Y. 31 Putnam Nail Co., Reponset, Mass. 25 Stetson N. Jr., 37 Pearl, N. Y. 39 Horse Shoes, Makers of. 39	P
Stetson N. Jr., 73 Pearl, N. Y	1
Horse Shoes, Makers of. Boston Rolling Mills, 17 Batterymarch, Boston . 5 Burden Iron Works, Troy, N. Y Riode Island Horse Shoe Co., Providence, R. I	P
McLean John, 300 Monroe, N. Y.	P
Dudgeon Richard, 24 Cotumbia, N. Y.	P
Insurance, Boiler. Hartford Steam Boiler Inspection & Insurance Co41 Iron Brokers.	5
Hon Brokers. Boynton Geo. A., 70 Wall, N. Y. Etting Edward J., Philadelphia, Pa. 5 Hatry A. G., Pittsburgh, Pa. 4 Hazard T. D., 204 Pearl, N. Y.	P
Onings John W of William N. W.	P
Teon Commission Merchants. Adams Hugh W., 56 Pine, N. Y. Lowe S. B., Chattanoga, Tenn. Spooner & Collins, St. Louis, Mo. 5 Leav. Pier. Investment.	P
Spooner & Collins, St. Louis, Mo. 5 Iron, Pig, Importers of. Williamson James & Co., 69 Wall, N. Y 4	P
Williamson James & Co., 69 Wall, N. Y	P
Borden & Lovell, 70 and 71 West, N. Y. Carmichael W. J., 130 and 132 Cedar, N. Y.	P
Huerstel G., 99 Market Slip, N. Y. Fuller, Lord & Co., 139 Greenwich, N. Y.	P
J. H. Jackson & Co., 266 and 268 Franklin, N. Y. Judson B. F., 457 and 459 Water, N. Y.]
Ogden & Wallace, 8s, 8s, 8s and or Elm, N. Y.	P
Quincy John W. 98 William, N. Y. Richards D. W. & Co., 92 Mangin, N. Y. Wallace W. H. & Co., 92 Mangin, N. Y.	1
Iron Dealers. Abeel Brothers, 190 South, N. Y. Bonnell, Botsford & Co., Youngstown, O. Borden & Lovell, 70 and 71 West, N. Y. Bonnell, Botsford & Co., Youngstown, O. Sorden & Lovell, 70 and 71 West, N. Y. Cooney Daniel F. St Washing, 190 Codan, Y. Huerstel G., 90 Market Silp, N. Y. Fuller, Lord & Co., 130 Greenwich, N. Y. Harrison & Gillion, 158 to 562 Waster, N. Y. J. H. Jackson & Co., 256 and 268 Franklin, N. Y. Judson B. F., 457 and 459 Waster, N. Y. Kane C., Pittsburgh, Pa. Ogden & Wallace, 85, 87, 85 and 91 Elm, N. Y. Heirson & Co., 24 Broadway, N. Y. Richards D. W. & Co., 26 Mangin, N. Y. Richards D. W. & Co., 26 Mangin, N. Y. Wallace Wm. H. & Co., Albany and Washington streets, N. Y. Warner A. B. & Sons, 28 and 20 West, N. Y. Warner A. B. & Sons, 28 and 20 West, N. Y. Warner A. B. & Sons, 28 and 20 West, N. Y. Warner A. B. & Sons, 28 and 20 West, N. Y. Warner A. B. & Sons, 28 and 20 West, N. Y. Warner A. B. & Sons, 28 and 20 West, N. Y. Varner A. B. & Sons, 28 and 20 West, N. Y. Varner A. B. & Sons, 28 and 20 West, N. Y. Varner A. B. & Sons, 50 Milladelphia, Pa. Levis & Kimball, Philadelphia, Pa.	R
Whitney A. R. & Bro., 58 Hudson, N. Y 4 Whitney A. R. & Bro., 58 Hudson, N. Y 4 Iron. (Manufacturers' Agents.) Levis & Kimball, Philadelphia, Pa	R
Levis & Kimball, Philadelphia, Pa	- 1
Pon. Manufacturers of. Boston Rolling Mills, 17 Batterymarch, Boston 5 Bradley, Reis & Co., 22 Cliff, N. Y 5 Burden Iron Works, Troy, N. Y 5 Collins H. E. & Co., Pittsburgh, Pa. 4 Houdlette & Ellis, Boston, Mass. 5 Kirknatrick, Reale & Co., Pittsburgh, Pa. 4 Kirknatrick, Reale & Co. Pittsburgh, Pa. 4 Pontal Proceedings 4 P	R
Kirknatziek Boole & Co. Distarbuset The	

	HE IRON AGE	7.4
	Kitchen Sinks.	
	Lathe Dogs. North Selden G., Philadelphia	
-	Lawin Mowers Lawin Most Co., Philadelphia	
-	Bayley, Farrell & Co. Pittshurgh & A.	1
	Locks, Manufacturers of.	
	Bonannan Wilson, Broadway and Rossuth, Brook- lyn, E. D. D. K. Miller Lock Co., Philadelphia, Pa. 26 Hoyt Fred J., 733 Broadway, N. Y. 18 Romer & Co., Newark, N. J. 35 Smith & Egge Mfg. Co., Bridgeport, Conn. 8 Stewart & Mattson, Philadelphia, Pa. 35 Union Nut Co., 90 Chambers, N. Y. 35 Yale Lock Mfg. Co., 53 Chambers, N. Y. 37	
-	Smith & Egge Mfg. Co., Bridgeport, Conn. 8 Stewart & Mattson, Philadelphia, Pa. 35 Union Nut Co., 99 Chambers, N. V. 36	
-	Machinery, Makers of. Bliss & Williams, 167 Plymouth, Brooklyn	
000	Machinery, Makers of. Machinery, Makers of. Bilss & Williams, 157 Plymouth, Brooklyn. All Niles Tool Works, Hamilton, O	
000	Wetherell Robert & Co., Chester, Pa	
000	Machine Screws, Makers of. Lyon & Fellows Mfg. Co., Williamsburg, N. Y. 13 Machinist' Tools, Makers of. Blaisdell P. & Co., Worcester, Mass. 34 Frasse & Co., & Chatham, N. Y. 40 Malleable Iron Castings, Makers of. Hammer & Co., Branford, Conn. 40	
	Mallets. N. Y. Handle and Mallet Works, 456 E. Houston36	
3	Manganese. Pyrolusite Manganese Co., 214 Pearl, N. Y35 Mensuring Tapes. Eddy Geo. M. & Co., 353 Classon Ave., Brooklyn, N.Y. 9	
	Meat Chopping Machinery.	
5	Metal Dealers and Brokers. Crane U. O., 104 John, N. Y. Dickerson, Van Dusen & Co., 29 and 31 Cliff, N. Y. Gregg H. L. & Co., 103 Walnut, Philadelphia. Phelips, Dodge & Co., Cliff, bet. John & Fulton, N. Y. 2 Purves A. & Son, cor. South and Penn, Phila. Quincy J. W., 98 William, N. Y. Sellew R. & Co., St. Louis, Mo. 39	
5	Purves A. & Son, cor. South and Penn, Phila	
5	Metal Elbows. Hogen Elbow Co., Cleveland, O	
-	Metals Perforated. Hayes G., 718th ave	
3	Brass Goods Mfg. Co., 280 Pearl, N. Y	
5	Miners' Candles, Makers of. James Boyd's Sons, 10 and 12 Franklin, N. Y 40 Mineral Lands, Dealer in. Hoskins W. A., Chattanooga, Tenn	
5	Mineral Wool. Elbers Alexander D., 26% Broadway, N. Y	
	Burrows Wm., 99 Fulton, N. Y	
25 3	Ripley Mrg. Co., Unionville, Conn	
2 1	Schoenberger & Co., Pittsburgh, Pa	
-	Nickel Pinters. Hartman John, 37% N. Seventh, Philadelphia	l
	Nickel Platers' Supplies. Colt A. T., 47 Beekman, N. Y. Condit, Hanson & Van Winkle, Newark, N. J	
2000	Night Latches. Many Francis, 143 Chambers, N. Y	
5000	Norway Shapes. Rollers of. Rowland Wm. & Harvey, Frankford, Philadelphia.42 Note Broker. Gallaudet P. W., 3 and 5 Wall, N. Y	
1	Nut Tapping Machines.	
7 7	Nuts, Bolts, etc., Makers of, Fuller Bros. & Co., 139 Greenwich, N. Y. 4 Haskell W. H. & Co., Pawtucket, R. I. 35 Lewis, Oliver & Phillips, Pittsburgh, Pa. 13 Roseberry Geo. D., Pottsville, Pa. 4 Russell, Birdsall & Ward, Port Chester, N. Y. 42 Stendard Nut Co., Pittsburgh, Pa. 5 Sternbergh J. H., Reading, Pa. 42 Union Nut Co., 92 Chambers, N. Y. 56 L. Lubrications, Makers of,	١
-	Shelton Co., Birmingham, Conn. 42 Standard Nut Co., Pittsburgh, Pa. 66 Sternbergh J. H., Reading, Pa. 42 Union Nut Co. of Chemistry N. 44	
3	Lester Oil Co., 81 Maiden Lane, N. Y	
5	Oil Stones. Boyd & Chase, 107th and Harlem River, N. Y	l
-	Florence Machine Co., Florence, Mass	١
-	Packing (Steam.) Symonds & Co., Philadelphia	l
2	Pans (Dripping and Bread.) Lewis, Dalzell & Co., Pittsburgh, Pa	١
	Patent Selicitors. Howson & Son, Phila and Washington, D. C. 7 Lenz & Schmidt, Berlin, N. W. 7 Spencer A. H., 28 State, Boston, Mass. Stetson Thomas D., 23 Murray, N. Y. 7	
	Pens (Steel.) Perry & Co., Limited, 112 and 114 William, N. Y 7 Picks, Makers of.	
200	Pierson & Co., 24 Broadway, N. Y	
	Pipes, Fittings, etc., Makers of. 24 John, N. Y. 28 McNab & Burnham Co., 48 John, N. Y. 28 McNab & Harlin Mig. Co., 49 John, N. Y. 28 Pancoast & Raule, 227 Peer, Philadeliphia. 28 Pipe. Water and task, Makers of. McNeal & Archer, Burlington, N. 6 Wood & D. & Co., 40 Chestnut, Philadeliphia. 28	
-	Plane Irons, Manufacturers of. Buck Bros., Millbury, Mass	
,	Planes, Manufacturers of. Bailey, Leonard & Co., Hartford, Conn	
-	Hall, Elton & Co., 75 Chambers, N. Y	
	Pliers. Hagstos & Thorpe, Ledger Building, Philadelphia11 Plumbers' Materials. Manufacturers of. Everhart Jas. M., Soranton, Pa	
5	Pocket Knives.	
	Thorne G. L. & Co., 26 Warren, N. V.	١
1	Presses, Power, Makers of. Bilss & Williams, 167 Plymouth, Brooklyn	۱
	Printers, E. S. Dodge Printing Co., 95 Chambers, N. Y. 19 Pulleys, Friction. 6 19 Mason, Voiney W. & Co., Providence, R. I. 42 Pennfeld Block Works, Lockport, N. Y. 59 Providence Tool Co., Providence, R. I. 39 Pump Pistons. 39	۱
	Penfield Block Works, Lockport, N. Y	١
	Pumps, Makers of. Douglas W. & B., Middletown, Conn. 7 Rumsey & Co., Seneca Falls, N. Y. 7 Rumsey S. M. & Co., St. Louis, Mo. 3 Southern Pump and Pipe Co., Chattanooga, Tenn. 6 Union Mfg. Co., 98 Chambers, N. Y. 7	1
	Southern Pump and Pipe Co., Chattanooga, Tenn. 6 Union Mig. Co., 98 Chambers, N. Y	1
101	Railroad Supplies. Jackson & Tyler, Baltimore, Md	1
556	Rails, Fron or Steel, Makers of, Atkins Bros., Potsville, Pa. 6 Cambris Iron Co, Johnstown, Pa. 6 Cambris Iron Co, Johnstown, Pa. 6 Cleveland Rolling Mill Co, Cleveland, Ohio. 5 The Edgar Thomson Steel Co., 2 Broadway, N. Y. 35 Rullway, Car and Locomolive Forgings. Wilson, Walker & Co, Pittaburgh, Pa. 4 Revolving Scraper Co, Columbus, Ohio. 55 Rivets. 55	1
5 4 4	Wilson, Walker & Co., Pittsburgh, Pa	1
45555	Grundy, Geo. C., 165 Greenwich, N. Y	1
46	Townsella W. P. & Co., St. Louis, Mo	
90 40 4	Stephens & Co., Riverton, Conn	1
4	Sand Irons. American Machine Co., Philadelphia	1
6	Brower J. L. & Son, 250 creenwich, N. Y	1

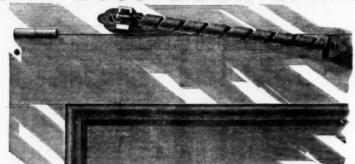
1	
Saws, Makers of. American Saw Co., Trenton, N. J	Stove Boards, Manufacturers of. Ansonia Brass and Copper Co., 19 and 21 Cliff, N. Y. 9 Shepard Sidney & Co., Buffalo, N. Y
Peace & Hogan, Williamsburg, N. Y	Stove Pipe. Shepard Sidney & Co., Buffalo, N. Y
Saw Frames, Wood, Makers of. Peace Harvey W., Williamsburg, N. Y	Stove Repairs, Metzner W. C., Chicago, III
Scalps Manufacturers of	Stoves. Michigan Stove Co., Detroit, Mich25
Brandon Mfg. Co., Rutland, Vt. 7 Chattillon John & Sons, or Cliff, N. Y 9 Richle Bros., oth above Master, Phila. 13	Tacks. American Tack Co., Fairhaven, Mass
Scalple & Bilge Mis. Co., St. Louis, Mo	
Science, Makers of C., Providence, R. I	Taps and Dies, Carpenter J. M., Pawtucket, R. I
Screws, Importers of. Bruce Geo. W., I Platt, N. Y 6	Try Squares, Bevels, &c., Makers of. Balley Leonard & Co., Hartford, Ct
Screw Cutting Machinery. Howard Iron Works, Buffalo, N. Y	Tube Expanders.
Wiley & Russell Mfg. Co., Greenfield, Mass40	Dudgeon Richard, 24 Columbia, N. Y
Screw Drivers, (Improved) Makers of. Disston Henry & Sons, Phila	Uphotsterers' Goods,
Scythe Stones. Dishman F. E., New Albany, Ind	Turner & Seymour Mfg. Co., St Reade, N. Y
Wood Thomas, Philadelphia	Valves, Gas, Water and Steam. Ludlow Valve Mfg. Co., Troy, N. Y
Shovels, &c. Hubbard, Bakewell & Co., Pittsburgh Pa 6	Ventilators. Bracher Ventilator Co., 3 Park Row, N. Y
Shovels, &c. Hubbard, Bakewell & Co., Pittaburgh Pa. 6 Rimball Shovel Co., Baltimore, Md. 36 Rowland B. & Co., Philadelphia. 19	
Sparks Thos. W., 121 Walnut, Philadelphia39	Bailey Wringing Machine Co., 92 Chambers, N. Y25 Millers Fails Co., 74 Chambers, N. Y25 Fisher & Norris, Trenton, N. J35 Trenton Vise & Tool Works, 101 & 103 Duane, N. Y 41
Shears (Sheep), Hildick A. H. & Co., 12 Warren, N. Y	Wagon Jack. Magic Jack Co., Mishawaka, Ind25
Smelting Works. Reeves Paul S., 760 South Broad, Phila42	Wagon Springs. Lafayette Wagon Spring Co., Lafayette, Ind34
Manning & Squier, 113 Liberty, N. Y	Buerk J. E. Boston, Mass. 28
Spiral Pipe (Wrought 1ron). Abendroth & Root Mfg. Co., 28 Cliff, N. Y	Water Pipes (Wooden). Shoots, Vinton & Co., Horseheads, N. Y
Springs. Carey & Moen, 234 W. 29th, N. Y. Rowland Wm. & Harvey, Frankford, Phila	Alcott F. C. & Son, Mount Holly, N. Y41 Weather Strips.
Stamped and Japanned Tin Ware. Shepard Sidney & Co., Buffalo, N. Y	Weather Strips. Bracher Ventilator Co., 3 Park Row, N. Y
Steam Boilers.	Bracher Ventilator Co., 3 Park Row, N. Y. 8 Wheelbarrows. Rodgers H. A., 19 John, N. Y
Steam Boilers. Firmenich J. G. & F., Buffalo, N. Y. 38 Steam Hammers. &c., Makers of. Dudgeon Richard, 24 Columbia, N. Y. 40	Brooklyn White Lead Co., 39 Maiden Lane, N. Y26 Colgate Robert & Co., 287 Pearl, N. Y
Dudgeon Richard, 24 Columbia, N. Y. 40 Steam Pumps, &c., Manufacturers of. Cameron A. S., East 234, N. Y. 40 Clayton Jas., 11 Water, Brooklyn, N. Y. 12 Crane Bros. Mfg. Co., Chicago, Ill. Knowles Steam Pump Works, 92 Liberty, N. Y. 38 McGowan John H. & Co., Cincinnati, O. 41 Shuitz M., Cincinnati, O. 38 Sunday Co., Chasthampton, Mass. 36 Steam Trebine Co., Easthampton, Mass. 36 Albany Steam Trac Co., Albany, N. Y. 41 Albany Steam Trac Co., Albany, N. Y. 41	Lewis John T. & Bros., 231 S. Front, Phila., Pa
Clayton Jas., 11 Water, Brooklyn, N. Y	Hammond W. S., Lewisberry, Pa
McGowan John H. & Co., Cincinnati, O. 41 Shultz M., Cincinnati, O. 38	Cary & Moen, 234 W. 29th, N. Y
Valley Machine Co., Easthampton, Mass	Haigh J. Lloyd, 81 John, N. Y
Steam Traps. Albany Steam Trap Co., Albany, N. Y	New Haven Wire Works, 58 Cliff, N. Y. 2 Prentiss Geo. W. & Co., Holyoke, Mass. 2
Eureka Cast Steel Co., Chester, Pa	Roberts Henry, Newark, N. J
Pittsburgh Steel Casting Co., Pittsburgh, Pa42 Steel Importers. Cart J & Riley 82 John, N. V.	Worcester Wire Co., Worcester, Mass
Pittsburgh Steel Casting Co., Pittsburgh, Pa. 42 Steel Importers. Carr J. & Riley, 82 John, N. Y. 34 Hobson Francis & Son, of John, N. Y. 34 Jonas, Meyer & Colver, Hartford, Conn. 34 March & Son, 18 John, N. Y. 34 Piten Dark, W. S. John, N. Y. 34 Piten Dark, W. S. 34 Van Wart, Son & Co., 184 and 126 Duane, N. Y. 11 Wolff R. H. & Co., 10 Cillft, N. Y. Steel (Mushet Special). Randall & Jones, 10 Oliver, Boston, Mass. 34 Randall & Jones, 10 Oliver, Boston, Mass. 34	Hammond W. S., Lewisberry, Pa. Wire, Manufacturers of. Cary & Moen, 234 W. 29th, N. Y. Gilbert & Bennett Mfg. Co., 373 Pearl, N. Y. Haigh J. Lloyd, & John, N. Y. Harrison Wire Co., St. Louis, Mo. Howard & Green W. W. Co., Holly M. W. Howard & Green W. W. Co., Holly M. W. Prentiss Geo. W. & Co., Holyoke, Mass. Prenton Geo. W. & Co., Holyoke, Mass. Trenton Iron Co., Trenton, N. J. Washburn & Moen Mfg. Co., Worcester, Mass. Trenton Iron Co., Trenton, N. J. Wire Drawing Machinery, Heald S. & Son, Barre, Mass. Wire Gauges. Brown & Sharpe Mfg. Co., Providence, R. I. Wire Goods, Manufacturers of. Esty, W. S., 59 Fulton, N. Y. Gilbert & Bennett Mfg. Co., 273 Pearl, N. Y. Haddleton Joseph, Rochester, N. Y. Joliver E., 106 and 108 Beekman st., N. Y. Jilland, G. and & Stellabeth, N. Y. Hassall William, 63 and 65 Elizabeth, N. Y. S. Hassall William, 63 and 65 Elizabeth, N. Y.
Moss F. W., 8c John, N. Y	Brown & Sharpe Mfg. Co., Providence, R. 1
Wolff R. H. & Co., 16 Cliff, N. Y	Gilbert & Bennett Mfg. Co. 273 Pearl, N. Y
Steel Manufacturers.	Oliver E., 106 and 108 Beekman st., N. Y
Cleveland Rolling Mill Co., Cleveland, O	Wire Nails. Hassail William, 63 and 65 Elizabeth, N. Y
Rowland Wm. & Harvey, Frankford, Phila	Hazard Mfg. Co., Wilkesbarre, Pa
Smith, Sutton & Co., Pittsburgh, Pa	Wooden Ware. Adams F. F. & Co., Erie, Pa
Midvale Steel Works, Nicetown, Philia, Pa	Wooden Warre Adams F. F. & Co., Erle, Ps
Wardlow S. & C., Sheffield, England	Coes L. & Co., Worcester, Mass
Steel Shutters. Clark & Co.'s, 162 and 164 W. 27th, N. Y. Steel Spiral Springs, Manufacturers of. Cary & Moen, 234 W. 29th, N. Y. 3	Adams F. F. & Co., Erie, Pa
Cary & Moen, 234 W. 29th, N. Y. 3 Chatillon & Sons, 91 and 93 Cliff, N. Y. 9 Stocks and Dies. Holroyd & Co., Waterford, N. Y. 13	Vitable Fa. Adams F. & Co., Eric, Pa. Adams F. & Co., Eric, Pa. Alexander T. J. Boston, Mass. Bailey Wringing Machine Co., 99 Chambers, N. Y. 15 Metropolitan Washing Machine Co., 52 Cortlandt, N. Y.
Stone Ironware. Metal Stamping & Enameling Co., St. Louis, Mo 3	N. Y. 13 Peerless Wringer Co., Cincinnati, O. 32 The American Machine Co., Philadelphia. 35
3	

42	Shepard Sidney & Co., Buffalo, N. Y31
12	Steve Pipe. Shepard Sidney & Co., Buffalo, N. Y
12	Stove Repairs. Metzner W. C., Chicago, Ill
12	Stoves. Michigan Stove Co., Detroit, Mich
	PRO Iv
7 9	American Tack Co., Fairhaven, Mass
13	TRCRs
	Taps and Dies. Carpenter J. M., Pawtucket, R. I. Manning H. S. & Co., 111 Liberty, N. Y. Tin Plate, Manufacturers of.
13	Manning H. S. & Co., III Liberty, N. Y
10	
6	O. S. Iron and Tin Flate Co., Fittsburgh, Fa
40	Tube Expanders. Dudgeon Richard, 24 Columbia, N. Y40
40	Dudgeon Richard, 24 Columbia, N. Y
29	Unpotsterers' Goods.
35	Uphotsterers' Goods. Turner & Seymour Mfg. Co., 81 Reade, N. Y
40	Valves, Gas, Water and Steam. Ludlow Valve Mfg. Co., Troy, N. Y
6	Bracher Ventilator Co., 3 Park Row, N. Y
36	Vises. Bailey Wringing Machine Co., 99 Chambers, N. Y25
39	Bailey Wringing Machine Co., 99 Chambers, N. Y., 25 Millers Falls Co., 74 Chambers, N. Y., 25 Fisher & Norris, Trenton, N. J., 38 Trenton Vise & Tool Works, 101 & 103 Duane, N. Y., 41
11	Trenton Vise & Tool Works, 101 & 103 Duane, N. Y. 41 Wagon Jack. Magic Jack Co., Mishawaka, Ind
42	Wagon Springs.
2	Lafayette Wagon Spring Co., Lafayette, Ind. 34 Watchman's Time Detectors. Buerk J. E., Boston, Mass. 28 Water Pipes (Wooden). Shoots, Vinton & Co., Horseheads, N. Y. 6 Water Wheels (Turbine). Alcott F. C. & Son. Mount Holly, N. Y. 41 Weather Strips. Bracher Ventilator Co., 3 Park Row, N. Y. 8 Wheelbarraws.
8	Water Pipes (Wooden). Shoots, Vinton & Co., Horseheads, N. Y
3	Water Wheels (Turbine). Alcott F. C. & Son. Mount Holly, N. Y41
42	Weather Strips. Bracher Ventilator Co., 3 Park Row, N. Y
31	Wheelbarrows. Rodgers H. A., 19 John, N. Y
38	Bracher Ventilator CO., 3 Park Row, N. Y. 8 Wheelbarrows. Rodgers H. A., 19 John, N. Y. Semple & Birge Mig. Co., St. Louis, Mo. 6 White Lead, Manufacturers of. Brooklyn White Lead CO., 39 Maiden Lane, N. Y. 26 Colgate Robert & Co., 39, Pearl, N. Y. 26 Jewett John & Sons, 182 Front, N. Y. 26 Lewis John T. & Bros, 231 S. Front, Phila, Pa. 26 Window Springs, Makers of. Hammond W. S., Lewisberry, Pa.
40	Jewett John & Sons, 182 Front, N. Y
40	Lewis John T. & Bros., 231 S. Front, Phila., Pa26 Window Springs, Makers of.
12 26	Hammond W. S., Lewisberry, Pa
38	Wire, Manufacturers of.
41 38	Gilbert & Bennett Mfg. Co., 273 Pearl, N. Y 2
38	Harrison Wire Co., St. Louis, Mo., 2
41	Howard & Morse, 45 Fulton, N. Y
42	Prentiss Geo. W. & Co., Holyoke, Mass
42	Roberts Henry, Newark, N. J.
42	Trenton Iron Co., Trenton, N. J.
	Worcester Wire Co., Worcester, Mass 2
34	Heald S. & Son, Barre, Mass
34	Wire Gauges.
34	Wire Goods, Manufacturers of.
II	Esty, W. S., 59 Fulton, N. Y
34	Haddleton Joseph, Rochester, N. Y
34	Wire Manufacturers of Cary & Moch, 23 W 25th, N. Y. Cary & Moch, 23 W 25th, N. Y. Cary & Moch, 25 W 25th, N. Y. Bright, J. Lloyd, 81 John, N. Y. Haigh, J. Lloyd, 81 John, N. Y. Harrison Wire Co., 82 Louis, Mo. 2 Howard & Morse, 45 Fulton, N. Y. Harrison Wire Co., 82 Louis, Mo. 2 Howard & Morse, 45 Fulton, N. Y. How Haven Wire Works, 36 Cliff, N. Y. Prentiss Geo. W. & Co., Holyoke, Mass. 3 Prenton Iron Co., Trenton, N. J. Washburn & Moen Mig. Co., Worcester, Mass. 3 Worcester Wire Co., Worcester, Mass. 3 Worcester Wire Co., Worcester, Mass. 3 Wire Gauges. Brown & Sharpe Mig. Co., Providence, R. I. Wire Goods, Manufacturers of, Esty, W. S., 59 Fulton, N. Y. Gilbert & Beinett Mig. Co. 273 Pearl, N. Y. Joliver E., 105 and 165 Beekman 81, N. Y. Jinver E., 105 and 165 Beekman 81, N. Y. Jinver Malland, and 65 Elikapheth, N. Y. Jinver Malland, and 15 El
34	Wire Rope, Iron and Steel, Makers of.
34	Haigh J. Loyd, 81 John, N. Y
42	Roebling's John A. Sons, Trenton, N. J 2
34	Wooden Ware.
3 5	Wrenches, Manufacturers of.
34 35 34	Bemis & Call Hdw. & Tool Co., Springheld, Mass
34	Haddleton Joseph, Rochester, N. Y. Oliver E., toś and toś Beckman st., N. Y. Wire Nails. Hassall William, 63 and 65 Elizabeth, N. Y. Z. Wire Rope, Iron and Sieel, Makers of. Haigh J. Loyd, 81 John, N. Y. Hazard Mrg. Co., Wilkesbarre, Pa. Roebling's John A. Sons, Trenton, N. J. Z. Wooden Ware. Adams F. & Co., Erie, Pa. Z. Wrenches, Manufacturers of. Bemis & Call Hdw. & Tool Co., Springfield, Mass. LOSS A. G. & Co., Worcester, Mass. Z. Girard Wrench Mrg. Co., Girard, Pa. Wringers.
2	Adams F. F. & Co., Erie, Pa
9	Girard Wrench Mfg. Co., Girard, Pa. 6 Wringers, Adams F. F. & Co., Erle, Pa. 28 Alexander T. J., Boston, Mass
13	Peerless Wringer Co., Cincinnati, O
31	
-	

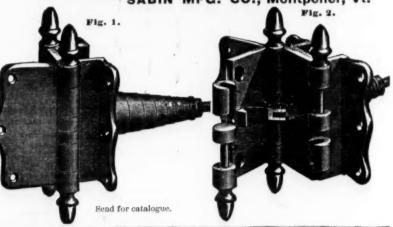
ZUCKER & LEVETT, NICKEL PLATERS' SUPPLIES.

Estimates for Complete Outfits Furnished. 639 & 641 West 51st Street, New York.

THE BOSS DOOR SPRING.



DOUBLE ACTING SPRING BUTTS, made by SABIN MFG. CO., Montpelier, Vt.



The Stamped Stove Pipe Elbow, HOGEN'S PATENT.

The Stamped Elbow has neither Crimps, Cavities nor Angles which cause accumulations that rust or corrode the Iron. OFFICE AND WORKS, Wasen St. on Lake Shore, CLEVELAND 0

JESSOP'S Patent Adjustable Pipe Tongs.



THE BEST IN THE MARKET.

Send for Samples.

EATON, COLE & BURNHAM COMPANY.

Sole Manufacturers,

58 John Street, New York.

24 OZ. TACKS.

Swedes Iron, Upholsterers', Gimp & Cut Tacks.

TINNED, LEATHERED AND LARGE HEAD IRON CARPET TACKS.

Trunk, Clout and Finishing Nails, Brads, Patent Brads, &c.

Lining, Saddle and Tufting Nails, Coffin Tacks and Tufting Buttons. COPPER, ZINC, STEEL, AND SWEDES AND COMMON IRON SHOE NAILS, &c. Regular and Chisel Pointed Boat Natls of Copper, Iron or Galvanized, Copper, Brass and Iron Wire Nails (Blued, Bright or Tinned), Escutcheon Pins, Chair and Cigar Box Nails, 2d & 3d Fine Nails, Roofing Tacks and Nails, &c., &c.

Made by the AMERICAN TACK CO., Fairhaven, Mass.

NEW YORK SALESROOM, No. 117 Chambers Street.

SAM'L COULTER.

A. FLAGLER.

JAS. FORSYTH.

COULTER, FLAGLER

87 Chambers & 69 Reade Sts., New York.

Hardware Manufacturers' Warehouse.

OFFICE AND WAREHOUSE OF

UNION HARDWARE CO.

Send for our illustrated price list and discounts.

J. & W. ROTHERY, Extra Hand Cut Files. RUGG MFG. CO.,
Draw Knives, Chisels, &c.
DEUSE BROS.,
Carriage Bolts, Refined and Norway Iron. DEUSE BROS.,
Bits, Corkscrews, &c.
RICHARDSON BROS.,
Saws of all kinds.

CAPTINGE BROS.,
Way Iron.
COWLES HARDWARE CO.,
Screwdrivers, Mincing Knives, &c.
RIDER, WOOSTER & CO.,

100L CO.'S Axes, Hatchets, &c. | niper, WOOSTER & CO., Anti-Friction Barn Door Hangers, &c. Hatchets. &c. H. B. HAWLEY, Shears of all kinds.

WALDEN KNIFE CO.,
Pocket Cutlery. AMERICAN SCREWS.

N. Y. ANTI-FRICTION METAL CO.'S C. FORSCHNER,

P. LOWENTRAUT & CO., Dividers, Calipers, &c.

THE CONNECTICUT VALLEY MFG. CO.,

Lewis' Patent Single Twist Spur Bits,





Middletown, Conn. This attractive and very desirable tool will be found more reliable and convenient than the Vernier Caliper, and to Machinists and Tool makers it is indispensable on work requiring very accurate and close measurement. Its capacity is one inch, and is graduated to one thousandths, but can readily be set one-half and quarter thousandths; and is so constructed that any wear resulting from use can be readily adjusted.

GEO. M. SCOTT, Bellows Manufacturer, Johnson Street, Cor. 22d St., CHICAGO, ILL.

McNab & Harlin Mfg. Co.,

BRASS COCKS AND VALVES

For STEAM, WATER

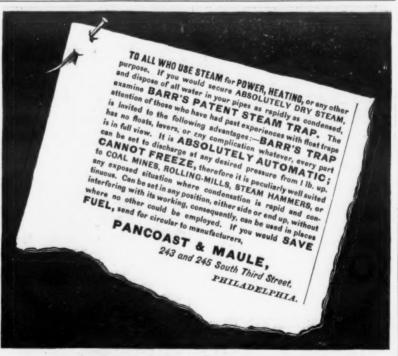
and GAS.

Iron Pipe and Fittings, Plain and Galvanized. PLUMBERS' MATERIALS.

New Illustrated Catalogue and Price List sent by express to the Trade on application.

Factory, Paterson, N. J.

56 John Street N. Y.



KEYSTONE WRINGERS.



Price per doz. \$60.00 63.68 68.00 Size of Rolls. Wood Frame Friction Wringers. Size of Rolls.
10X15/6
10X13/4
11X13/4 Price per doz

Self-Adjusting Iron Frame Friction Wringers. Size of Rolls. 51.00 54.00 62.00 IOXI% IOXI% IIXI% Warranted greater capacity than any other wringer.

Send for price list of other goods for home and export trade. F. F. ADAMS & CO., Erie, Pa.



BUERK'S Watchman's Time

Capable of controlling with the utmost accuracy the motion of a watchman or patrolman as the same reaches different stations of his beat. The instrument is complete in itself, portable and as reliable as the best lever watch. It requires no fixture or wires communicating from room to room, as is the case with the ordinary watch clocks. A small, inexpensive stationary key is alone required at each station. The instrument will, in all cases, be warranted perfect and satisfactory.

N. B.—The suit against Imhaeuser & Co., of New York, was decided in my favor, June 10, 1874. Another suit has been decided against them and a fine assessed Nov. 11, 1876, for selling contrary to the order of the Court. Persons using clocks infringing on my Patent will be dealt with according to law.

J. E. BUERK, Proprietor,

P. O. Box 979.

No. 230 Washington Street, Boston.

In sending for circular or ordering the above, please mention this paper.

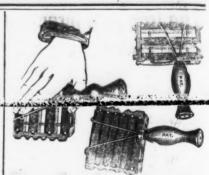


Universally acknowledged to be without an equal as a Kitchen Sink. Descriptive Circular and Prices.

C. C. HARLO W. & CO.,

BRIDGEWATER, MASS.,

anufacturers of DAMAN STANDARD HOLLOW ATURES.—Universally accommended superior to any other in the market. They have recently been their kind, either in design, material or workmanship. SPOKE AND WELL TRIMMERS.—The very best as well as the cheapest. METALLIC COMMEL TRIMMERS.—The very best as well as the cheapest. METALLIC COMMEL TRIMMERS.—The very best as well as the cheapest. METALLIC COMMEL TRIMMERS.—The very best as well as the cheapest.



The Perfect Comb

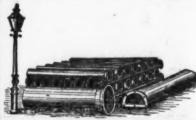
THE LAWRENCE COMB CO. Factory and Office. 382 2d Ave., cor. 22d St., N. Y.

WM. S. CARR & CO. Bole Manufac-turers of



Closets. PUMPS, CABINET WOOD WORK, &c. 106, 108 & 110 Centre Street, Factory, Mott Haven, NEW YORK.

CARR'S PATENT Water

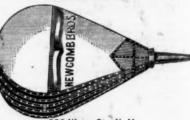


Philadelphia,

Manufacturers of Cast Iron Pipe

FOR WATER AND GAS. Lamp Posts, Valves, &c., Mathew's Pat. Anti-Freezing Hydrants. 400 CHESTNUT STREET.

NEWCOMB BROS.,



586 Water St., N. Y. TENNIS & WILSON, Agents, 81 Beekman Street, N. Y.



I invite special at tention to my

PATENT Reversible Nozzle.

These Bellows are well adapted and put up for export trade. I manufacture all sizes, with or without this improvement.

NEW YORK and BOSTON Pattern

STORE TRUCKS. Railroad, Warehouse, Platform

and Block Trucks, all sizes. Manufactured only by

H. N. HUBBARD, 323 East 22d St., New York.

Reduced prices. Catalogues furnished.



HENRY DISSTON & SONS

Keystone Saw, Tool, Steel & File Works.

FRONT AND LAUREL STREETS, PHILADELPHIA.

Branch Works, Tacony, Philadelphia.

Branch House, Randolph & Market Streets, Chicago. Ill.

OUR CELEBRATED CROSS-CUT AND WOOD SAWS.



New York Wholesale Prices, July 17, 1878.

-	HARDWARE	1
4		1
	A nvils. A american. A merican. B gold loige over 240 hs rolic, gold Armitage's Mouse Hobs. Create Hobs. Create Anvils (American). Apple Parers, &c. Augers and Bits. Climax Corer and Slicer Augers and Bits. Conn. Valley Mfg. Co. Douglass Mf. Co.	
	Eagle Auvils (American)	
	Bay State . 9 dos 1500, dis 10 % Reading, 72 P dos 85.00, dis 10 % 74 9 dos 7.00 dis 10 % 74 9 dos 7.00 dis 10 % 75 9 dos	
	75.	
	Conn. Valley Mfg. Co. Douglass Mf. Co. Ives.	
	Oriswoid	
	Douglass Mf CO Ves	
	Imitation Jenning's Bits.	
	Griswold's Patent Bits	
	Ives "Jennings" Bits dis 2cs Lewis Single Twist Bits dis 4cs Andrews Bits dis 4cs Andrews Bits dis 5cs Biske's served dis 2cs Biske's served dis 2cs Biske's served dis 4cs Bonney's Adjust, \$\psi\$ dos \$\frac{1}{2}\$\$ dos \$\frac{1}{2}\$\$ dis 4cs Bonney's Adjust, \$\psi\$ dos \$\frac{1}{2}\$\$ dis 4cs Bonney's Adjust, \$\psi\$ dos \$\frac{1}{2}\$\$ dos \$\frac{1}{2}\$\$ dis 4cs Bonney's Adjust, \$\psi\$ dos \$\frac{1}{2}\$\$ dis 4cs Bonney's Adjust, \$\psi\$ dos \$\frac{1}{2}\$\$ dis 4cs Bonney's Adjust, \$\psi\$ dos \$\frac{1}{2}\$\$ dis 4cs Bonney's Expansive served \$\frac{1}{2}\$\$ dis 4cs Biske's served dis 4cs Bi	-
	French Swift & Co	
	Gimlet Bits\$7.50 \mathbb{R} gross, dis 40 \mathbb{D} lamond\mathbb{R} dos \$1.00 dis 25 \mathbb{S}	
	Double Cut Gimlet Efts Shepardson'sdls 40 % Ct. Valley Mfg. Codls 30&10 % Hartwell'sdis 50&10 %	
	Douglass'	
	Watrous Ship Augersdis 15 % Awl Hafts. Tewing, Brass Ferrule\$3.50 % gross—dis 35&10 %	
	### 3.50 dis 35&10 % ### 1.00 P dos—dis 35&10 % Long. #### 1.00 P dos—dis 35&10 % Long. ####################################	-
	Awls, Brad Sets, &c. Awls, Brad Sets, &c. Awls Sewing, Common	1
	Sewing, fees with the series of the series o	-
	** Handled Brad. \$5.00 \(\) gross—dls 35&10 \(\) # ** Handled Scratch. \$7.50 \(\) gross—dls 25&10 \(\) # ** Socket Scratch. \$1.00(\(\) \(\) \$1.25 \(\) doz—net ** Alken's \$\(\) # doz \$1.200-dls 40&10 \(\) #	-
	A wil Haits. - wing, Brass Ferrule. - \$3.50 \(\tilde{\t	-
	Axles Common (Guy C. Hotchkiss, Field & Co.) % n 44c Solid Collar, Case Hardened, Chilled Box % n & Axle Grense.—Fraser's % n & C	1
	Balances. B Light or "Common" dis 25&10 % All other Spring Balances dis 25 % Bed H.eys.—Gray's Ratchet. # doz \$4.00, dis 15 %	1
		1
	** Silver Chime	
	" Silver Chime dis 20210 \$ " Swiss dis 25 \$ " Globe (Cone's Patent) dis 25 \$ " Jankee dis 20210 \$ " Yankee dis 30210 \$ " Barton's dis 30210 \$ ank, Taylor's dis 20210 \$ " Brook's dis 50 \$ " Cone's dis 50 \$ " Cone's dis 50 \$ " Glis 50 \$ " Cone's dis 50 \$ " Cone's	
	"Cone's dis to \$ Cone's dis 50 \$ Connei's dis 50 \$ Lever, Bargent's dis 55 \$ 10 \$	ľ
	Japanned Lever	١
	Pull,	
	Cow, Common wrought dis 20210 5 Western. dis 20210 5 "Sargent's dis 60210 5 Fentucky "Star" dis 50210 5 Sargent's dis 60210 5	1
	** Sargent's dis ook10 \$ **Entucky "Star" dis ook10 \$ **Dodge's Genuine Kentucky, new list- Nos. 0 1 1½ 2 3 4 5 6 Hog \$\frac{3}{2}\$ 12.00 1.000 9.00 8.00 6.00 5.00 3.90 2.50 5.00 dis 50 \$ **Yaw's Genuine	
	" Yaw's Genuine	1
	Beliews	
	Moulders' dis 25 Street and Pittsburgh Pattern. dis 25 Stand Bellows dis 25 Silned Adjusters.—Domestic F doz \$2.00, dis 26 Silned Adjusters.—Domestic F doz \$2.00, dis 26 Silned Fasteners.—Mackrell's dis 30 Van Sand's No. 200. \$14.00, dis 26 Van Sand's No. 200. \$14.00, dis 26 Van Sand's Silned Fastent. F gross \$10.50, dis 68 Van Sand's Silned Fastent. F gross \$10.50, dis 26 Van Sand's New list not l	1
	Washburn's Patent years \$1,500, this 30 % Merriman's new list net Hilland Stapples.	1
	Washurn New list not	1
	Differential Pulley Blocks	
	Stanley Rule and Level Codis 335% 10% Biswers. Keyatone Portable Forge Codis 20 %	1
	Holis- Cast Iron Barrel, Shutter, &c. dis 648:05 Cast Iron Chain (Sargent's list). dis 648:05 Bush's Lever Boits. dis 44, 108:05 Spring Butts (Humason & Beckley Mig. Cool dis 648:05 Wrought Iron Barrel. dis 65, 108:05	1
	Wrought fron Harrel dis 50, 10&10 % "Square dis 50, 10&10 % "Square dis 50, 10&10 % "Shutter (Stanley's list dis 50, 10&10 % "(Sargent's new list) dis 50, 70% 10 % "(Sargent's new list) dis 50, 70% 10 %	1
	Square dis 50, 108 108 50, 108 108 50 108 108 50 108 108 50 108 108 108 108 108 108 108 108 108 10	1
	" Ex. Heavy, dis 202 10 5 20 10 5 20 5 20 5 20 5 20 5 20	1
	"Plated Knob & Slide Fluan" dis 10&10 & Carriage and Tire, Common. dis 76 & 3 common. dis 76 & 6 common. dis 70 & 6 common. dis 60 & 10 & 10 & 10 & 10 & 10 & 10 & 10 &	
	Tire, Am. Screw Co	1
	Union Nut Company Comp	1
	Machinedis osacio s	-
	Horing Machines. Upright. Angular. First quality, no Augers\$5.50 \$7.50 dis 40&10 %	1
	Bolt Ends dis 6c Holt and Hivet Clippers - Chambers dis 2c 5 Boriax dis 2c 5 Boring Machines. Upright Angular 475 First quality, no Augers 425 Second quality no Augers 425 Second quality no Augers 425 Bnell's, no Augers 425 Bnell's, no Augers 425 Bnell's, with Augers 425 Bnell's with Augers 425 Bnell's 425 Bnell'	1
	Phillips' with Augers. 10.00 dls 25 % How Pins. Union Nut Co. dls 60&10 % Hotchkiss low list dls 10 % Humason, Beckley & Co.'8. 10.00 and \$31.00 dls 60&10 % Humason, Beckley & Co.'8. 10.00 and \$31.00 dls 60&10 % Braces.—Harter's Patent. dls 60&10 % Wilson fig. 10.00 dls 10.00 dls 10.00 dls 10.00 dls 10.00 affe. Wilson fig. 10.00 dls 10.0	1
	Humason. Beckley & Co.'s	-
	O. S. Backus	1
	Ives "Centennial"	26.7
	Bright Wire Goods	-
	Spoffou o's Patent dis cok; 5 Moble's Patent dis sock; 5 Noble's Patent dis sock; 5 Ives' "Cu ptennia" dis sock; 5 Ives' "Cu ptennia" dis sock; 6 Bracketa.—Sneif (Sargent's). dis cokno @ cokno is S Nring T. & S. M'ye. Co.)	
	Wrought Brass. dis 60 % Cast Brass, Tiebout's dis 40 % Corbin's dis 50 % o % o %	3
	Fast Joint, Narrow dis 60&105 Broad dis 50&105 Loose Joint, Narrow and Broad dis 70&105 Parliament Butts. dis 60&105	80
	Mayers minges	100
	Past Joint, Narrow discount for the first dis	ST THE PARTY OF
	Parliament Butts	0
	Acores Acorn dis Acorn dis Acorn dis Acorn dis Played Tips dis 55810 y	1000

	MEM TOLK WIL	01629
-	Patter Falsa R. d. 1. 2008 30 % dia 0.60 / 5 % of 1. 2008 10 % dia 0.60 / 5 % of 1. 2008 10 % with Hive Acorns dia 0.60 / 5 % of 5 % with Hive Acorns dia 0.60 / 5 % of	adjustable Han Witherby Tool C
	" with Iron Acornsdis 75&10 % " with Silvered Acornsdis 56-&10 % WROUGHT IRON	Douglass'
	Lt. Narrow	Orills and D Blacksmiths'. "Self- Breast, P. S. & W "Hotchkis" "Wilson's "Miller's Ratchet, Merrill "Ingerso
	Light dis soctor 5 Loose Pin, Wrt dis soctor 5 Spring Hinges:	" Ingerso Whitne " Weston " Moore's
	Sabin Mfg. Co.'s Double Acting. dis 25% Centennial, Japanned. dis 25% Centennial, Japanned. dis 26%	Whitney's Hand Wilson's Drill St Automatic Borin Drill Chuck
	Union Spring Hinge Co.'s. dis 25 % American Spring Hinge Co.'s. dis 25 % Union Mfg. Co. dis 25 % Union Mfg. Co. dis 25 %	Danbury
	" Palmer dis 408 52 10 5 " Seymour dis 652 102 10 7 5 " Shepard dis 6656 10 7 5 " Luli & Porter dis 6656 10 5	National
	Loose Pin, Wrt.	Mill E. Buckets,
	Butchers' Cleavers. dis 20 % Humason & Beckley Mfg. Co. dis 20 % D. R. Barton Tool Co. dis 20 % Bradley's. dis 25 %	Emery. Genuine Chester Washington Mill
	Sargent's Cleavers Cleavers Humason & Beckley Mfg. Co. dls 20 % D. R. Barton Tool Co dls 20 % Bradley's dls 25 % Beatty's dls 25 % Beatty's dls 25 % Beatty's dls 25 % Beatty's dls 25 % Beatty 2 3 % dls 25 % Beatty's dls 26 % dls	Wellington Mills Hampden Emery
	\$20,00 20,00 20,50 33,00 37,00 4140 .45,00 Can Openers. Messenger's Comet	Enameled as Kettles Sauce Pans Tinned Sauce Pa
-	American	Door Lock Brass Thread
	\$80.00 20.00 20.00 30.00 37.00 41.00 44.00	Fenn's
-	Sardine Scissors	Star Frary's Patent P Wood and Metal West's Patent Ko Metallic Key, Le Cork Lined.
-	" D, W. P. 34	Felloe Plater
1	Colt's 1-108, 80e gold Cartridges.—Metallic dis 6087 Cards.—Horse and Curry dis 33\68.10 % Cotton dis 208.10 %	AuburnArcade
	' Iron, Steel Points If doz \$2.00, dis 30 %	Nicholson
	Casters. Bed	Jowitt's. J. & Riley Carr Stubs'. Butcher's. Walter Spencer &
-	Casters. Casters. Bed. dis 55 % Plate and Shallow Socket. dis 55 % Deep Socket. dis 60 % Cattle Lenders. dis 10 % to % Hotchkiss Sons. dis 10 % to % Fumason, Beckley & Co.'s. dis 60 % Sargent's. dis 60 % to % to % Union Nut Co. dis 60 % to % to %	Moss & Gamble Moss & Gamble H. Disston & Son Limet & Co. (Frei Boynton's Cant. Fluting Mac
	Chain. Dy the cask, # pair 45 @ 46c	6 6 4 4
	German Halter Chain	Peerless, 4-inch I
	Chalk. dis 508: \$ Chalk. White. # gross 55c net Red # gross 55c net	Eagle, 334-inch R. Empire Eureka. No. 1, 7-in. No. 2, 5-ii. Crown, 434-in. Rol
	Chalk. White White Red # gross 5% net Blue # gross 5% net Blue # gross 5% net Blue # gross 5% net Cherry Stoners Family # 102 \$6,75 dis 10 % Chiscis.	Domestic Fluter. Geneva Hand Fluter Combined Fluter
	Chisels. Olso Co. (all kinds)	Fluting Sciss Forges "Empire KevstonePortable Forks.
		Forks. Hay. Manu re an Piated A. Roge Reed & Ba Fruit and Je Enterprise Mfg. (Fry Pans.
	Douglass dis 20 5	Fry Puns. Burnished, P. S. (No
	Hart Mrg. Co., extra.dls ogscs:roz z Merrill. dls ogscs coz z Witherby Tool Co. dls ogscs coz z Witherby Tool Co. dls ogscs coz z Witherby Tool Co. dls ogscs coz z dls ogsz z dls	Granges. Wire. Star.
	Newbould's	"Smith's Pate Gimlets Nall and Spike "Bee "Gimlets "Eureka "Gimle "Diamond "Gim Double Cut, Shep "Hart "Ives"
	Clamps, Iron, Providence Tool Co.'s, Wrt. Iron	"Diamond" Gim Double Cut, Shep "Hart" "Ives"
	4 Stearns' dis 15&10 % 4 Cabinet, Sargent's dis 6o&10&10 % 5 Carriage Makers', Sargent's dis 6o&10&10 % 5 Cord and Tape (T. & S. Mig. Co.) dis 30 %	Glue Pots. Tinned and Enan Family, Howe's
	Cord and Tape Cr. & S. Mig. Co.)	Glue Pots. Tinned and Enan Family, Howe's " L.F. & C Grindstone F Sargent's Patent. Reading Hardwa
	Cocks, Brass. dis Hacking, L. F. & C. list. dis 6 Peck Bros. list. dis Globe. dis Plain Blibbs. dis	Hart Mfg. Co., No Rick Bros Hammers. Maydole's (no
	Ale and Beer, L. F. & C. list	Verree
	Coffee Mill	Magnetic Tack Warner & Noble's Hand Cuffs a Providence Tool (Tower's
	Compasses, Dividers, &c.	Handles.—Doo Nos
	Callipers dis 30&10 5 Dividers dis 50&10 5 Dividers dis 50&10 5 Bemis & Call Co.'s Dividers dis 25&10&23\(\)5 & Callipers dis 25&10&23\(\)5 & Callipers dis 25&10&20\(\)6 (15 & 15 & 15 & 15 & 15 & 15 & 15 & 15	Bronzed Iron Dro Jap'd Store Door no Plate, 75c Barn Door
	Cook's. dis 15 % Excelsior. dis 40 % Miller's Patent. dis 25 % Coopers' Tools.	no Plate, 75c Barn Door. Wrought Chest Surface Chest, Sa Flush Chest Lifting
	Bradley's	Saw and Plane Boynton's X Cut (Hammer and Hat North Carolina H
	Excession	North Carolina H Brad Awl. Hickory Firmer C
	56, 96, 34 in. \$1.80, 2.00, 2.40. dis 10 5 Curling Tongs \$\psi\$ dox \$4.25, dis 10 5 Pinching Irons \$\psi\$ doz 7.50, dis 20 5 Curry Combs.	Bocket "
	Curry Comb Mfg. Co. dis 25&10 % Fitch's (List of No. 240, \$1). dis 33½&10 % Hotchkiss'& Kellogg's, Iron & Brass, old list.dis 40&7½ % Hotchkiss' Novelty. dis 20&10 %	File, assorted, & Auger, assorted, large, Patent Auger, Ive
	Curtain Pins.—Slivered Glass	Hangers. Anti-Friction Barn Door Novelty Challenge
	Am. Miller Bro.'s Cutlery Codis 25 % Humason & Beckiey, Pocketdis 25 %	Stouling Improve
	Cocoa, Plain # dos #2.25, dis 20 \$	Cheritree
	Dog Cellars. Emboseed Giltdis 20 %	Andrews' Sargent's New York Wire "German"
	Leather dis 30 5 Brass dis 24 5 Door Springs dis 24 5 Torrey's Rod P dos \$2.00 net Gray's P dos \$1.05, net Johnson's Rod P dos 20, net Gray's P dos 30, net Gray's P	Isaiah Blood Shingling, Nos. Claw, Nos.
	Gem (Coll— No. 1, Large, Japanned	Hunt's
	No.	Shingling, Nos. Claw, Nos. Lathing, Nos.
	Nickeled	Shingling, Nos. Claw, Nos. Lathing, Nos.
	Japanned. # doz 87.60 0.25 5.00 dls 30 5 Nickeled. D doz 11.00 5.5 8.00 kl. Nickeled. D doz 11.00 5.5 8.00 kl. No. 4, ("Shoo Fly") Screen door size # doz 81.50 No. 5, Screen Door Size. # doz 82.50 No. 5, Screen Door Size. # doz 82.50 No. 5, Screen Door Size. # doz 82.50 No. 7, Large. # doz 9.50 dls 25 5 No. 7, Large. # doz 9.50 dls 30 5 Sabin's Levr. No. 1, \$1 2, \$1.00, \$2.50 kls. \$2.50 dls 30 5 Sabin's Levr. No. 1, \$1 2, \$1.50, \$2.50 kls. \$2.50 dls 30 5 Sabin's Boss. # doz 84.20, dls 26 5 Philadelphis. 5 in \$8.50 kls. \$2.50 dls 30 5 Sabin's Levr. No. 1, \$1 2, \$1.50, \$1.50 kls. \$2.50 dls 30 5 Sabin's Levr. No. 1, \$1 2, \$1.50, \$1.50 kls. \$2.50 dls 30 5 Sabin's Levr. No. 1, \$1.50 kls. \$2.50 kls. \$2.50 dls 30 5 Sabin's Levr. No. 0 kls. \$2.50 kls. \$2.50 dls 30 5 Sabin's Levr. No. 0 kls. \$2.50 dls 30	Collins'
	Sabin's Lever. No. 1, \$1; 2, \$1.50; 3, \$2; 4, \$2.50; dis 30 % Sabin's Boss. \$\psi\$ doz \$\\$,20\$, dis 40\$\chi\$ \$	Lathing, Nos. D. R. Barton Tool
	Saolin Soss. # dos #4.20, dis 408.10 Philadelphia 5 in. #5.00 8 in. #7.00, dis 35 Barker's Concealed dis 20 Cowell's No. 1, \$18.00 No. 2, \$15.00 # dos dis 20 Rubber, complete # dos \$1.00, net Drawing Knives. dis 658.1 Drawing Knives. dis 658.10 Dr. Barton Tool Co dis 20 Bartill dis 568.10 Bartill dis 668.10 Goston dis	M. H. Jones & Co. Shingling, Nos. Half Hatchets
	D. R. Barton Tool Co. dis 20 % Hart Mfg. Co., extra dis 6c#c\$c.102 % Marrill dis 6c#c\$c.102 % Marrill dis 6c#c\$c.102 %	Claw, Nos. Lathing, Nos.

UTUSAI	UI	11000
Adjustable Handle. Witherby Tool Co. Douzlass. Orills and Drill? Blacksmiths. "Self-Feed Breast, P. S & W. "Hotchkiss. Wilson's. "Wiston's. "Weston's. "Moore's Trill. Whitney's. "Moore's Trill. Whitney's Hand Drill. Wiston's Drill Stocks Automatte Boring To. Danbury. Danbury. Lag Heaters. Family. Schoffeld. Elevator Buckets Mill E. Buckets, light Mill E. Buckets, heav Emery. Genuine Chester—Re, Genuine Chester—Re,	SCROTTO CORTER	dis 35)
Witherby Tool Co Douglass'	stacks.	dis 60%10 50 dis 70 9
Blacksmiths'	ing	each \$2.15 ne
" Hotchkiss " Wilson's		or sibdis zo
Ratchet, Merrill's Ingersoll's (o	old list)	dis 35 9
" Weston's " Moore's Trip Whitney's Hand Dril	le Action	dis 20 9
Wilson's Drill Stocks Automatic Boring To Drill Chucks.—M	ols orse's Beach	each \$2.75, dis 20 9
Danbury	" Adju	steach \$10.00, dis 30 9
Family		₩ doz #5.00, dis 20 9 ₩ doz #3.00 net ₩ doz #4.50, dis 331/5 9
Elevator Buckets Mill E. Buckets, light	, 3% to 10 ii	n., (Duc's Improved
Mill E. Buckets, heav	y, 5 to 10 inc	hes (Duc's Improved) doz \$5.60 @ \$10.20, net
Emery. Genuine Chester—Re "File Washington Mills—Re "File Hampden Emery Gra "File Enameled and T	gular Nos our and FF	P 15 51/16 2 dis.
Wellington Mills, Gra	in	
Hampden Emery Gra	inur	50 net
Sauce Pans	***********	dis 40 @ 50 %
Door Lock Brass Thread	Same disc	counts as Door Locks
Faucets.	************	dis 25 %
Wood. Faucets. Fenn's Fenn's Fenn's Cork Stops. Star. Frary's Patent Petrol Wood and Metallic. West's Patent Key. Metallic Key, Leather Cork Lined. Enterprise (Self Meas Felloe Plates. Files. American File Co	eum	dis 40 %dis 55&10 %dis 20&10 %dis 20&10 %
West's Patent Key Metallic Key, Leather	Lined	dis 40 %
Enterprise (Self Meas Felloe Plates	uring)	₩ doz, \$36.00, dis 20 %
American File Co	85,00 to	£ currency dis 3; \$ currency, dis 25 \$
G. & H. Barnett Nicholson Heller & Bros	(Ni	cholson List) dis 25 %
Madden & Cockayne l Jowitt's J. & Riley Carr	ile Co8	5.00 to £ cur., dis 25 %
Stubs' Butcher's Walter Spencer & Co.	's "Diamond	.\$7.00 @ 7.50 to £ gold 4.50 to £ gold l" 4.50 to £ gold
Felices (Files. Files.	w list)	4.75 to £ gold 4.50 to £ gold als 35 \$
Boynton's Cant	H.	
Rnox, 4-men Rolls		\$2.50 each net
Eagle, 35-inch Roll		4.75 each net
Empire. Eureka. No. 1, 7-inch F	toll	6.75 each net
Crown, 41/-in. Roll, \$4; Champion, 4 in., \$2.15; Domestic Fluter	6-in., \$4.75; 8- 6-in., \$2.50;	n., \$7.25 each, dis 45% 8-ln., \$4.00 each, net
Fluting Scissors.	Sad Iron	\$15.00 \ doz, dis 10 \ \ doz 15.00, dis 10 \
"Empire		dis 20 %
Forks. Hay. Manu re and Sp Pated At, Rogers & Reed & Barton. Fruit and Jelly I Enterprise Mg. Co	ading Bro	new list, dis 15
Fruit and Jelly I Enterprise Mfg. Co	Presses.	dis 40æ5 %
Fry Pans. Burnished, P. S. & W. No doz\$3.00 \$3.75	new list	dis 60 %
Thuges.		41
Wire Smith's Patent Gimlets.		dis 35 % dis 10 % doz \$18.00, dis 40 %
"Bee" Gimlets "Eureka" Gimlets		gross \$12.00, dis 45 % dis 40 %
Double Cut, Shepardse Hartwell'	om*s	dis 20&10 %
"Smith's Patent. Gimlets. Nail and Spike. "Boe "Gimlets. "Eureka" Gimlets. "Diamond "Gimlets. Double Cut, Shepards. "Hartwell" "Yes". "Douglass" Gine Pet Inameled Family, Howe's "Eure		dis 40 %
Glue Pots. Tinned and Enameled family, Howe's "Eure " L. F. & C.'s "! Grindstone Fixtus Sargent's Fatent. Reading Hardware Co	ka" landy" res.	dis 25 %
Sargent's Patent Reading Hardware Co	"Keystone	dis 70&10&10 % dis 40&10&2 % "dis 45&10&2 %
Rick Bros.	11	dis 50&10 %
Hammers. Maydole's (new list Cheney's Steel Face at all Steel.	d Claw	dis 10 %
Verree. Magnetic Tack Warner & Noble's. Hand Cuffs and I Providence Tool Co.'s Tower's. Handles,—Door or	er Irona	dis 5 %
Providence Tooi Co.'s	and Cuffs, a	15.00 \$ dox dis 10 %
Handles.—Door or	Thumb Late	4
Nos 80.80 I.O Per doz 80.80 I.O Roggin's Latches Bronzed Iron Drop La Jap'd Store Door Hand	tches	doz \$0.85 @ \$1.00 net
Barn Door	per dos	Or on din 6s brokes
Wrought Chest. Surface Chest, Sargent Flush Chest. Lifting.		dis 60&10&10 %
Litting. Saw and Plane. Boynton's X Cut (Loop " (Cent Hammer and Hatchet	nnial)	dis 20 %
Hammer and Hatchet. North Carolina Handle Brad Awl. Hickory Firmer Chise	assorted,	Oss \$3.75, dis 25&10 % gross \$5.25)
Apple " "	large, assorted, large,	6.50 6.00
Socket "Framing File, assorted, # gross Auger, assorted, # gross Large, Patent Auger, Ives' "Bouglas Swan's. Hangers.	assorted,	4.50 dis 40 %
Patent Auger, Ives'		dis 25&10 %
Hangers. Anti-Friction		₩ set \$1, dis 20&10 %
Hangers. Anti-Friction. Barn Door. Novelty. Challenge. Climax (Anti-Friction		dis 70&10 @ 75&10 %
Storling Improved (Av	et. Endadton	
Harness Snaps. Henshaw'sList of 1 Judd's	% changed	14.00, dis 50 % 14.00, dis 50% to % 14.00, dis 50%
Andrews'	***********	dia d
Sargent's New York Wire "German" Hatchets. Isaiah Blood		dis 60 %
Shingling, Nos. 1 2 3.	₽ do:	#7.25 #8.00 \$8.75 2 7.75 8.50 9.25
Lathing, Nos. 1 2 3. Hunt's	₩ do	2 7.75 8.50 0.25 2 7.50 8.00 8.50
Lathing, Nos. 1 2 3. Hurd's.	₩ do	Till order head
Shingling, Nos. 1 2 3. Claw, Nos. 1 2 3. Lathing, Nos. 1 2 3. Simmon's.		2 9.00 9.50 10.00
Shimon's. Shingling, Nos. o 1 2 3 Claw, Nos. 1 2 3 Lathing, Nos. 1 2 3 Broad, Nos. 1 2 3 Broad, Nos. 1 2 3 Collins'	₩ dos \$7.	50 \$8.00 \$8.50 \$0.00 0.00 0.50 10.00
Broad, Nos. 1 2 3 2 Nos. 5 6 7 8	₩ doz o.	00 10.00 12.00 14.00 00 18.00 20.00 22.00 dis 10 %
Claw Nos. 1 2 3.	# do	2 \$0.00 \$6.50 \$7.00 2 6.50 7.00 7.50
Shingling, Nos. 1 2 3	₩ dos	\$11.00 \$10.50 \$10.00

, , , , , , , , , , , , , , , , , , , ,	Jeny II, Ioro	
	Hay Knives. "Lightning". Wadsworth's. # dor \$20.00 net dis 30 %	
and Drill Stocks. dis 70 %	"Lightning"	1
Self-Feeding	. N. E. Reversible	1
Vilson'sdis 20 % liller's Faliseach \$2.50, dis 25 % Merrill'sdis 20 %	** Automatic	1
Ingersoli's (old list)dis 35 % Whitney'sdis 30 % Weston'sdis 20 %	Rolled Blind Hinges dis fook to % to led Plate dis 70 kt to % Rolled Plate dis 70 kt to % Rolled Raised dis 70 kt to % rok to %	i
Moore's Triple Actiondis 20 @ 25 % 's Hand Drilidis 20&10 % Drill Stocksdis 10 %	Wrought Strap and 1, list Dec. 20, 77dis conto % Plate Hinges 5 6 to 10 in 55cc % B 4dis 10 % Providence (over 10 in 45cc % B 4dis 10 %	1
Chucks.—Morse's Beach Patent dis 30 % Adjust.each \$10.00, dis 30 %	Screw Hook and Strap 8, 16, 12 In., 110 dis 40&10 % 1,40 36 in., 91&0 dis 40&10 % Heavy Wolded Hook 58 to 12 In., 11 0 dis 30 %	1
eaters. # doz #s.co, dis 20 %	Screw Hook and Eye	1
# doz #3.00 net ₩ doz #4.50, dis 333/5 % ₩ doz #3.40	Hees.—Solid Shank, C. 8 (36 in. 9 dox 85.25, dis 15 % Socket	2
or Buckets. # dox 83,50 uckets, light, 3½ to 10 in., (Duc's Improved) # 100 \$15,00 @ \$5,4.00, net uckets, heavy, 5 to 10 inches (Duc's improved) # dox \$5,00 @ \$10.20, net	Riveted Eye	1
# doz \$5.00 @ \$10.20, net	Handled Solid C. S. Shank dis 5 Planters', Handled dis 35 5	SHH
Chester—Regular Nos. P 5 540 dis. Flour and FF F B 4 C 10 5 ton Mills—Regular Nos. F 5 6 6 Flour F 5 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Hick's Pat. Solid C. S. Planters' dis 20&10 @ 30 %	HIE
on Mills, Grain	Hooks. Bird Cage, Sargent's list	
Flour	Cotton (Humason & Beckley Mrg. Co.)	
nsdis 30 @ 35 % auce Pansdis 30 @ 35 %	" McGill's, 83.00 et doz	
eled and Tinned Ware. as. dis 40 % 50 % as. dis 30 % 55 % auce Pans dis 30 % 55 % heous. k. Same discounts as Door Locks ead dis 60% 10 % dis 20 % 10 %	" Sargent's list. dis cope to \$\frac{1}{2}\$ (Reading list. dis 4\frac{1}{2}\$) \$\frac{1}{2}\$ (Heavited list. dis 4\frac{1}{2}\$)	EE
%. dis 50 %. dis 40 %. dis 40 %.	Celling Sargent's list dis 70&10 % Harness, Reading list dis 4,&10&2 % Cost and let Hort's list dis 5,&&76.5 for \$	GER
atent Petroleumdis 55&10 % atent Petroleumdis 20&10 % d Metallicdis 40 %	" Sargent's list	F
dis co 5	Tassel (T. & S. Mfg. Co.)	200
Plates # B 150, dis 50 %	Hocks Hocks Bird Cage, Sargent's list	8
\$4.00 to £ currency, dis 25 %	Horse Nails.	JE
Bros	Nos. 5 6 7 8 9 10 Ausable	F
Carr	Pollahed or Blued " 31c 28c 26c 25c 24c 23c 20 5 Pridgewater Iron Co. (Nos. 5 6 7 8 0 10	L
pencer & Co.'s "Diamond" 4.50 to £ gold	Pointed and Pollshed 5 262 232 232 262 162 182 Nos. 5 6 7 8 9 10 Cortland 202 262 262 262 262 262 262 262 262 262	B
amble	Globe (New list). 1 Nos. 5 0 7 8 9 10 180 net	D
g Machines. dis 40 %	Finished	JH
(Self Measuring)	Horse Nails. Nos. 5 7 8 9 10	JBJ
inch Roll	Vulcan P't'd & Blued. 26 23 21 20 19 18C net Horse Shoes.—Burden. R keg \$3.52% R. I. Horse Shoe Co., Perkins' Improved Light,	H
(o. 1, 7-inch Roll	Medium and Heavy.	78
1, 4 in., \$2.15; 6-in., \$2.50; 8-in., \$4.00 each, net Fluter	I ce Awis, Chisels, &c. # doz \$6.50 net	9
l Fluter and Sad Iron	Noveity Ice Breakers	1
		B
u re and Spading new list, dis 15 1, Rogers & Bro dis 406, 5 Cas ed & Barton dis 4065, 5 and Jelly Presses, e Mfg. Co dis 20 %	Perkins' Snow. Ca Awis, Chisels, &c. \$\psi\$ dog \$\pi_5\$, onet National "\$\psi\$ dog \$\pi_5\$, onet National "\$\psi\$ dog \$\pi_5\$, onet National "\$\psi\$ dog \$\pi_5\$, and \$\psi\$ dog \$\pi_5\$, and \$\psi\$ dog \$\pi_5\$, and \$\psi\$ dog \$\pi_5\$, and \$\psi\$ dog \$\psi_5\$, and \$\psi\$ dog \$\psi_5\$, and \$\psi_5\$ dog \$\psi_5\$ dog \$\psi_5\$, and \$\psi_5\$ dog \$\psi_5\$	M
e Mfg. Codis 20 %	Kettles. Brass, 7 to 13 inches inclusive	200
0 X 2 3 4 5 6 7 8 \$7.00 \$3.74 4.25 4.75 5.24 6.00 7.00 8.00 9.00	Comparison	GBB
ng dis so&ro 5 Star dis 35 5	" Shoe dis 15 % " Bread Wadsworth's " doz \$1.50, dis 15 % Hay and Straw—" Wadsworth's " dis 30 %	110
Spikedis 40@45 %	Table and Pocket	T
Gimletsdis 40 % dis 202 to % it, Shepardson'sdis 40 % dis 202 to %	Base - Common dis 30\$\text{\$\tilde{x}\$\til	Duc
Hartwell's	Por. Jap'd Same discounts as Door Locks.	
d Enameled dis 40 % owe's "Eureka" dis 25 %	Furniture, Plain	D
tone Fixtures. Patent	Sargent's dis 60&10	81
" Keystone"	** Sargent's dis \$6&10 % ** Reading dis 15&10 % ** Monroe's Patent \$\pi\$ doz \$4.00, dis 20 \$	NA
ole's (new list on A. E. Bell Face)dis 15 % Steel Face and Clawdis 10 %	Tubular	M
Tack	Peerless. No 5, \$\vec{v}\$ doz \$11.75, dis 10\$\vec{v}\$10\$ Srady's Patent. dis 10\$\vec{v}\$10\$	CHA
ce Tool Co.'s Hand Cuffs, \$15.00 \(\Phi \) don \(\frac{1}{2} \) dis 10 \(\frac{1}{2} \)	Yankee. dis 10&10 % De Beque. dis 10&10 % Police. Small. 87.50 * Med. 80.00 * Large. 812.00. dis 20 %	58
-Door or Thumb Latches— dis 25 %	Lard Presses	Cl
ron Drop Latches # doz \$0.84 \$ 1.00 net	Lemon Squeezers. Porceiain Lined	St
7,750	Sammis Patent No. 1, \$7.50; No. 2, \$12.00 Fed.	3 7
hest, Sargent's listdis 60&10&10 % st	Cotton Chalk	GI
X Cut (Loop)	Mason's Linen. dis 20 % Wire Clothes, Galvanized. each 35 @ 43c net Locks and Latches	MC
olina Handle Co	Sabinet—Gaylord	Be
large, 16 6.50 assorted, 5 6.60 large, 17 7.50	"Bridgeport Lock Co. dis 25&2 % Trunk . dis 25 % Laugstroth & Crane's List Jan. 1, '77.	No
raming " assorted, " 4.50 dis 40 % ted, % gross	Flat Key dis 30% 10 % 10 % 10 % 10 % 10 % 10 % 10 %	Co
ge,	Shepardson's, Flat Key dis 35 % American Lock Mfg. Co. dis 35 % American Lock Mfg. Co. dis 35 %	SI
Swan's	F. Many's "Extension Cylinder"\$10.50 \(\pi\) dos, ne. DUOE LOCES, &C. dis 60\(\pi\) 10\(\pi\) 2\(\pi\)	St
	Norwalk dis 50&10&2 % Norwich dis 50&10&2 % Russell & Erwin dis 50&10&2 %	CI W W
nti-Friction)	Mailory, Wheeler & Co. dis 35&1082 % Reading Hardware Co. dis 35&1082 % Padlocks—Russell & Erwin dis 334865 \$	No
sList of 11s changed to \$14.00, dis 50 %	Wm. Wilcox & Co and 2 % for cash Wm. Wilcox & Co and 2 % for cash D. K. Muller Lock Co	Mi Pe Di
14.00, dis 50% dis 10 % dis 50 %	Romer's uis 30 k Vulcan Hardware Co dis 20 k J. H. alc Williams dis 10 f	SI
Wire	Ames' Futcher Knives	Di
Od	Mallets.—Hickory and Lignumvitedis 10&10 % Ment Cutters. Dixon's (P. S. & W.) Nos. 1 2 3 4 downsor's (P. S. & W.) Nos. 1 2 17.00 19.0030.00—dis 25 %	H.
Nos. 1 2 3. \$\psi\$ doz 7.50 8.c0 8.50 g, Nos. 1 2 3. \$\psi\$ doz \$7.25 \$8.c0 \$8.75 Nos. 1 2 3. \$\psi\$ doz 7.75 8.50 9.25 Nos. 1 2 3. \$\psi\$ doz 7.50 8.35 9.00	Perry's Nos. 1 2 3 4 4 g'rd 5 g'rd	E.
Nos. 1 2 3	Dixon's (P. S. & W.) Nos. 1 2 3 4. Miles' Challenge	w
8, Nos. 1 2 3. \$\psi\$ doz \$80.0 \$\$ 50 \$9.00 Nos. 1 2 3. \$\psi\$ doz \$0.00 \$.50 \$0.00 Nos. 1 2 3. \$\psi\$ doz \$0.00 \$.50 \$0.00 \$0	Hates	u
## dos ##	Americandis 25 %	w
Nos. 1 2 3 4 # doz 16.00 12.00 14.00 Nos. 56 7 8 # doz 16.00 18.00 20.00 22.00 dis 10 %	Heliasses Gales, Stebbins Pattern	Re Sa
g, Nos. 1 2 3 \$\forall \doz \bar{\text{8}}\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Chase's Hard Metal Gis 40×10 %	Bo
on Tool Co	Weed's dis 15 % Mortars and Pestics. Let	Co Le Na
g, Nos. 1 2 3	Nortising Machineseach \$20.00, dis 20 % Nails	Be
College, Nos. 1 2 5. \$\psi\$ dog \$1.00 10.50 10.00 \$ 8. \$\times\$ CO. \$\ldots\$ \$0.00 \$8.00 \$ \$8. \$\times\$ Nos. 1 2 5. \$\psi\$ dog \$0.00 \$ \$0.00 \$\ldots\$ \$0.00 \$\ldots\$ \$0.00 \$\ldots\$ \$0.00 \$ \$0.00 \$\ldots\$ \$0.00 \$\ldots\$ \$0.00 \$\ldots\$ \$0.00 \$\ldots\$ \$0.00 \$ \$0.00 \$\ldots\$ \$0.00 \$\ldots\$ \$0.00 \$\ldots\$ \$0.00 \$\ldots\$ \$0.00 \$ \$0.00 \$\ldots\$ \$0.00 \$\ldot	Stebbins Fattern dis 62/810 %	
10.50 10.50 10.50	42.35, tus 10 x	

jo A	U. S. Navy B B 84 Navy B D 74	c
0 0 %	V Seat.	大大大大
0%	Malicable (Hammer's)\varphi dos \$5.00, dis to Prior's Patent or " Paragon "	ち 気 気
0%	Percils. pis took to Percils. pis took to Percils. pis took to pis	* 5
0%	"Round Gilt # gross \$5.25 ne Dixon's Lead # gross 4 <o "lumber="" #="" 5,50="" gross="" ne="" ne<="" td=""><td>t</td></o>	t
0 %	Ox Halls. pis oox to Pencils. dis to Dencils. Carpenters' dis to Dixon's Lead. \$\partial \text{gross \$5.25 at 0}\$ bixon's Lead. \$\partial \text{gross \$5.25 at 0}\$ c. Lighter \$\partial \text{gross \$7.50 at 0}\$ c. Lighter Natisand Knots. \$\partial \text{dox} d	%
0%	Brass Head. Sargentes List	N 200 W
et	Porcelain Head, T. & S. Mfg. Co	K K
5%	Pench Parers. Lightning. Pacture Nails and Knobs. Brass Head, Sargen'se List. dis 50&ro&ro- Porcelain Head. Pindd's List. dis 50&ro&ro- Porcelain Head. T. & S. Mig. Co. dis 10 is 40; Pinking Irens. W doz \$2.75, dis 70&5; Plaiting Machines. W doz \$5.00, ne Astor Platting Machines. dis 50 And Pinking Machines. dis 50 And Pinking Machines. dis 50 And Pinking Machines. dis 50 Fins Gas Co. Toln, \$5.00, ench. First Quality Machines dis 50&ro- Britst Quality Machines dis 50&ro- Britst Quality Machines dis 50&ro- Britst Quality dis 50&ro- Britst Quality dis 50&ro- Bailey's Patent Adjustable, new list Jan. 77, dis 52&ro- Bailey's Patent Adjustable, new list Jan. 77, dis 52&ro- Bailey's Patent Adjustable, new list Jan. 77, dis 52&ro-	t
0%	Crown Plaiting Machines	×
0 % W	Planes and Pinne Irons. First Quality Second "dis to&to Second "dis to&to Bailey's Patent Adjustable, new list Jan. '77, dis zskro Bailey's Patent Adjustable, new list Jan. '77, dis zskro Bailey's "Victor" "dis zskro Beflane Adjustable, new list dis zskro D. R. Barton Tool Co. "dis zo D. R. Barton Tool Co. "dis zo Plane Irons, Butcher's. \$5.40 to £ gold Buck Bros. \$5.00 to £ gold Bulley's Patent. dis zskro Balley's Patent. dis zskro Balley's Patent. dis zskro D. R. Barton Tool Co. "dis zo Middletown Tool Co. dis zo Middletown Tool Co. dis zo Spear & Jackson's. \$5.00 to £ gold Spear & Jackson's. \$5.00 to £ gold Pliers and Kipperss.	K K
5 % % W	Bailey's "Victor" dis 25&10 Defiance Adjustable, new list. dis 25&10	2 2 2 2
570	Plane Irons, Butcher's. 85.50 to £ gold Buck Bros. 85.00 to £ gold	1
5%	"Auburn Tool Co.'s	2 2 2
1 × 2 ×	" D. R. Barton Tool Co dis 20 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	X % X
2 % 2 % 2 %	" Spear & Jackson's	1 %
25.5	Priers and Nippers dis 23\(25\) Dutton's Patent Nippers No. 2, \$1\) For a sign Nippers No. 2, \$1\) Cas Pilem Oils 25\(36\) Oas Pilem O	2 2 2
2 % %	Gas Pliers	2
CHE WAY	P. S. & W. Cast Steel	20
17.5%	Disaton's	2 2 2
12.50	Chapin's Patent Adjustable	200
5 %	" Non-Adjustable dis 60&10 % Johnson's Patent Adjustable dis 60&10 % Davis' Patent dis 60&10 %	2 2 2
	Pocket Levels	6
lis %	Fletcher Post Hole—digers # dos 36.00, dis 20 5 Vaughan's Post Hole—6 in. \$22.50: 7. 8 and 0 in. \$25 per dos dis 20	6
3	Plumbs and Levels. Stanicy R. & L. Co.'s Pat. Adjustable	
15	"Saratoga" Pecier and Silcer # dos #3.500 dis fo t "Farning Hook." # dos #7.75 dl #7.4 ming Hook. Dission's Combined Pruning Hook and Saw Pruning Hook # dos #35.00 dis 20 5 Pulleys # 11.50, dis 20 5	
et lis	Pruning Hook per doz \$18.00, díszo 5	5
et	Pulleys. Judd's Axle	
et et	Brass Screw	
16	Pulleys. Judd's Azle	
16	"Anti-Friction," \$7.50 dis 20 % Punches,	
et %	"Bemis'. dis 20 % Solid, Tinners'. # doz \$1.44, tils 30 %	
W 25 W	Rail. Sliding Door, Wrought Brass \$\Ps\$ 40c dis 10 \(\frac{5}{2} \) Barn Door, \$\frac{5}{2} \) and \$\frac{5}{2} \) inch	
et et	for N. E. Hangers dis 70&10 % Rakes. Cast Steel dis 75 %	
et et %		
et	## \$5.00	
N N	Genuine Emerson dis 30@3314 % Badger's Emerson dis 20 % Badger's (not Emerson) dis 20 %	
* * *	Evans'	
8	Hunt's	
13	Hunt's dis 40&5 5 Chapman dis 10 @ 15 5 Torrey's dis 20 5 Saunder's dis 10 @ 15 5	
4 4	\$3.60	
13	Hunt's	
THE PERSON IN	Iron and Tinned dis 50 m bulk, new jist of Jan. 10, 1876 dis 40 copper Rivets and Burs dis 40 copper Rivets and Burs dis 2 s w b490 soc 50c 54c 55c 55c 60c 64c 70c Rivet Sets dis 40 k copper Rivet Sets dis 40 k copper Rivet Sets dis 40 copy 8 copy 8 copy 8 copy 8 copper Rivet Sets dis 40 copy 8 copy 8 copy 8 dis 20 copy 8 copy 8 dis 20 c	
** **** * ***	Iron and Tinned	
** **** * ***	Iron and Tinned	
** **** * ***	Iron and Tinned	
** **** * ***	Iron and Tinned	
** **** * ***	Iron and Tinned	
** **** * ***	Iron and Tinned	
** **** * ***	Iron and Tinned	
** **** * ***	Fron and Tinned	
** **** * ***	Fron and Tinned	
** **** * *** **** ** ****** ** **** *** *** ***	Fron and Tinned	
· 电光光光 ª 光光果 光光光果 社 光光光光光光光 光光 经实儿 黑水泥 黑光珠	Fron and Tinned	
THE WAR WAR SHARE IL MANAGEN SER LESS MAN MAN MAN MAN	Fron and Tinned	
THE WAR WAR SHARE IL MANAGEN SER LESS MAN MAN MAN MAN	Fron and Tinned	
· 电光光光 鬼 紫黑黑 光彩光彩 社 紫花花光光光光 景花 红花礼 紫光光 繁	Fron and Tinned	
THE WAR AND THE PERSON OF THE PERSON WHEN THE MER THE	Fron and Tinned	
THE WAR AND THE PERSON OF THE PERSON WHEN THE MER THE	Fron and Tinned	
C 电光光片 瀛 紫紫莺 光紫光素 st 美国英语美国人 医藻 计算机 斯洛克 医乳腺 黑 医罗莱 医黑黑黑黑黑黑人 医皮	Fron and Tinned	
C 电光光片 瀛 紫紫莺 光紫光素 st 美国英语美国人 医藻 计算机 斯洛克 医乳腺 黑 医罗莱 医黑黑黑黑黑黑人 医皮	Fron and Tinned	
C 电光光片 瀛 紫紫莺 光紫光素 st 美国英语美国人 医藻 计算机 斯洛克 医乳腺 黑 医罗莱 医黑黑黑黑黑黑人 医皮	Fron and Tinned	
C 电光光片 瀛 紫紫莺 光紫光素 st 美国英语美国人 医藻 计算机 斯洛克 医乳腺 黑 医罗莱 医黑黑黑黑黑黑人 医皮	Fron and Tinned	
C 电光光光 淋 发光度 光光光度 st 美名英人英名人 美名 经发机 医外角 医牙缝 医头宫属 医克克莱克氏囊儿 医医克克莱克 医数 医克人属人	Fron and Tinned	
C 电光光光 淋 发光度 光光光度 st 美名英人英名人 美名 经发机 医外角 医牙缝 医头宫属 医克克莱克氏囊儿 医医克克莱克 医数 医克人属人	Fron and Tinned	
C 电光光光 淋 发光度 光光光度 st 美名英人英名人 美名 经发机 医外角 医牙缝 医头宫属 医克克莱克氏囊儿 医医克克莱克 医数 医克人属人	Fron and Tinned	
C 电光光光 淋 发光度 光光光度 st 美名英人英名人 美名 经发机 医外角 医牙缝 医头宫属 医克克莱克氏囊儿 医医克克莱克 医数 医克人属人	Fron and Tinned	
D) 电光光光 淋 紫果果 光光光素 社 美光光光光光光 医第二氏系统 黑头角 医乳球 第二天医生 医医克里氏菌科 医高光光谱器 医数元素元光光体 采 采 医二甲甲基甲基	Fron and Tinned	
D 电光光光 谯 芳芳芳 美光光光 经关系法治系统 复居 计落心 斯沙克 斯兰蛇 黑 头唇属 医医克莱氏菌病 医医克莱斯 医数 医九头属小头后外 灰 鬼 死 死 是 是	Fron and Tinned	
D 电光光光 谯 克莱莱 异苯异苯 吐 英次英次英方法 莫索 计离址 医外部 医牙缝 黑 医医克里塞克塞拉 医乳头蛋素 医粒 医乳头蛋白头蛋白 苯 宪 宪 宪 医 军	Fron and Tinned	
D 电光光光 谯 克莱莱 异苯异苯 吐 英次英次英方法 莫索 计离址 医外部 医牙缝 黑 医医克里塞克塞拉 医乳头蛋素 医粒 医乳头蛋白头蛋白 苯 宪 宪 宪 医 军	Fron and Tinned	
D 电光光光 谯 克莱莱 异苯异苯 吐 英次英次英方法 莫索 计离址 医外部 医牙缝 黑 医医克里塞克塞拉 医乳头蛋素 医粒 医乳头蛋白头蛋白 苯 宪 宪 宪 医 军	Fron and Tinned	
D 电光光光 谯 克莱莱 异苯异苯 吐 英次英次英方法 莫索 计离址 医外部 医牙缝 黑 医医克里塞克塞拉 医乳头蛋素 医粒 医乳头蛋白头蛋白 苯 宪 宪 宪 医 军	Fron and Tinned	
D 电光光光 谯 克莱莱 异苯异苯 吐 英次英次英方法 莫索 计离址 医外部 医牙缝 黑 医医克里塞克塞拉 医乳头蛋素 医粒 医乳头蛋白头蛋白 苯 宪 宪 宪 医 军	Fron and Tinned	

Scales.	Johnson's
Union Platforms	Johnson's. # doz \$1. Penny's. # doz \$14.00 and \$15.00, Appleton's. \$00 Nuts and Washers. Washer's. \$00 Nuts and Washers. Protective Ventilator Co. \$ Well Wheels.—Revised list. Wire.
Brown's dis asks Fairbanks' dis asks di	Protective Ventilator Co. s
Scales Each Counter # dos \$16, dis 40 \$1	Protective Ventilator Co. 8 Well Wheels.—Revised list Wire. Brass and Copper. List of July 1, Bright and Annealed. Nos. 06 18, dir Nos. 16 28, dir Nos. 16 28, dir Coppered. Nos. 10 6. Nos. 27 62 40, dir Galvanised, Nos. 10 6. Nos. 06 18, dir Galvanised, Nos. 10 18. market list, Tinned, Nos. 0 to 18. market list, Tinned Broom Wire. Nos. 18 to 25. dil Annealed Fence, Yos. 8 and 9 dil Galvanised Telegraph, Nos. 7 to 9 "Staples. Nos. 10 to 14. dil Galvanised Telegraph, Nos. 7 to 9 "Staples. Staples. Staples. Staples. Salvanised. Staples. Salvanised. Staples. Staples. Salvanised. Staples. Staples. Staples. Salvanised. Staples. Sta
Universal Family	Nos. 19 @ 26, dl
Sargent's list dis \$600 to \$	Galvanized, Nos. o to 6
Defiance Box and Ship	Cast Steel
hip (common)per dos \$3.00 net " (Providence Tool Codis 10 \$	Annealed Fence, Nos. 8 and 9 di Grape, Nos. 10 to 14 di Galvanized Telegraph, Nos. 7 to 9
Screw Drivers. Jart, Bliven & Mead, new listdis 44&10 % Jouglass Mfg. Codis 35&10 %	Nos. 10 and 11
lisston's Patent Excelsion dis 45 \$ lisston's Patent Excelsion dis 65 \$ lisston's Patent Excelsion dis 65 \$ lisston's Patent Excelsion dis 65 \$ lisston's Patent Excelsion dis 55 \$ lisston's P	"Staples, Galvanized
anley Ruie & Level Cos., Black Handlesdis 35\$10 \$ Varnished H'le dis 45\$10 \$	Japanned Barb Fence. Galvanized Stani Music Wire Nos 12 to 22
rgen & Co.'s	Judd's Picture Wire. Clothes Line Wire, Galvanised # coll :
and Head Iron t Head Brass, list Sept. 1, '75dis 50 \$	Wire Cloth. Clinton, green or drab. by the roll, per sq.
ass and Silver Capped	American Adjustable
g or Common Coach	Collins & Co.'s Coes' Genuine
chine, Flat Head, Iron, Am. Screw Codis 25 % Round Head, Iron, dis 20% dis 58 % 68 %	" (Malleable)
Variance Als	Lindsay's " Tatt's Pattern Davis' Patent Duplex new
and Rail, Sargent's	Bemis & Call's Patent Combination
k Bell Bottom	" Cylinder or Gas Pipe
ood German Steel, Grass # dos \$10.00	Wringers. Universal, Cog Wheels, No. 216
" Silver " # doz 12.00 dis \$1.50 German " Grain # doz 14.00 from list	Crown No. 2
Excelsior and Granger. # dos 15.00 } Young America. 11.00 dis \$1.50	Connes Line wire. Galvanined. Wire Cloth. Clinton, green of drab, by the roll, per sq. Clinton, green of drab, by the roll, per sq. American Adjustable. Baxter's Adjustable "S," Diagonal. Collins & Co."s. Coes' Genuine. " Pattern Wrought. Girard. (Malleable)
8ilv Clipper 13.00 from list daworth's Grass dis 40 %	Novelty, No. 10, with Cog Wheels
A A S Mfg Co	Keystone No. 1, Wood Frame, no Gear
it Steel	" No. 10, Wood " Common Gea
ming. Scissors. dis 65 %	No. 356
ners'	Stamped Tinware. Common Stamped Ware, L. & G. List, Apri
rs rat. Solid Steel Bent	Stamped Deep and Retinned Ware, L. & G April, 1878
Per doz	METALS.
Patent Roller dis 2462 % Hatfield's dis 2562 % Russell's Anti-Friedles dis 5062 %	IPON -Derry Barre 1 to Com.
ling Shutter, R. & E. list	Hoop and Scroll, 13 to 136. W B; provided of the above Iron shall pay a less rate of d
ore's Anti-Friction dis 45 % hovels and Spades. dis 32\% %	Wrought Scrap, \$8 \$7 ton; Polished Shee Wrought Scrap, \$8 \$7 ton: Cast Scrap, \$8 Railroad 70C. \$7 100 Bs. Boiler and Plate.
not stamped "Ames" dis 57½ % will so dis 57½ % what shad showed Co. dis 20 % and so dis 20 % a	Pig Iren-AMERICAN. Foundry No. 1
	IRON.—DUTY: Hars, I to 15cc. \$\pi\$ is \$\footnote{\text{RON}}\$. But \$\text{Sold}\$ is \$\footnote{\text{PRON}}\$ is \$\
nning's Shovels and Scoops. dis soc; 1/6 % Rowland & Co., Anchor Brand dis 50 %	Glengarnock # ton Eglinton # ton Coltness # ton
ford Patent	Rails. # ton Steel. # ton Old Rails. # ton
n and Brass Head, R. & E. listdis 50&2 % Hart'sdis 50&10&2 % lished Steel	Old Rails
lates. lare Frames, Round Cornered, by casedis 70 %	Common Iron:
poke Shaves. iance Metallicnew list, dia 25&10 %	% to 2 in. round and square to 6 in. x% to 1 in
10 dis 305 dis	% to 2 in. round and square 1 to 6 in. x3 to 1 in
Spoke Trimmers. # doz \$10.00, dis 40 % sarn's # doz \$10.00, dis 40 %	Refined Iron: \$\fo 2 \text{in pround and square} 1 to 6 \text{in pround and square} 1 to 6 \text{in pround and square} 1 to 6 \text{in pround and square} Rods = \fo \fo \text{and 11 to round and square} Rands = 1 to \fo \fo \text{32 to 6 to No. 12} Swedish Iron: Ordinary sizes.
Ilahed Steel	Ordinary sizes
ned Iron	Common American. Nos. 10 to 20
tannis	21 to 24
Section Sect	COMMON American Nos. 10 to 20.
l & Elton dis 40% 5 5 mes, Booth & Haydens dis 40% 5 5 mes Silver (Hall & Elton)	25 to 26, 4
man Silver (L. Boardman's Sons). dis 30% 5 %	Patent Planished
Cowles Hdw. Co.).	Patent Planished
ocks and Dies. dis 25	which Copper is a component of chief value
ostan Stone # B 6c	valorem. American Ingot
Slips. 20 % rec	Braziers Copper, ordinary sizes, over to c
Stips. W b roc) Stone. W b fc, dis 30& ro % hita Stone (Boyd & Chase). No 1, W b 250	# sq. ft. Braziers' Copper, ordinary sizes, 16 oz. ar over 12 oz., # sq. ft.
Slips.	Francer's Copper, ordinary sizes, 15 oz. as over 12 oz., sq. ft. Braniers Copper, to oz and 12 oz., \$\pi\$ sq. ft. Braniers Copper, to oz and 12 oz., \$\pi\$ sq. ft. (Treles less than & in ! n diameter.
Slips.	Brasiers Copper, ordinary sizes, 15 oz. as over 12 oz., \$ *90, ft. Brasiers Copper, 10 oz and 12 oz., \$ *sq. ft. Lighter than 10 oz. \$ *sq. ft. Circles less than \$4 \text{i.i.} in diameter of circles \$4 \text{in.} diameter and over.
Slips. # 5 toc 1	Braniers Copper, ordinary sizes, 16 oz. at over 10 oz., # sq. ft. Braniers Copper, 10 oz and 12 oz., # sq. ft. Braniers Copper, 10 oz and 12 oz., # sq. ft. Circles less than 84 in. in diameter circles 84 in. diameter and over Segment and Pattern Sheets Locomotive Fire Box Sheets. Sheathing Copper, over 12 oz. # sq. ft. Bolt Copper.
Slips	Brasiers Copper, ordinary sizes, 10 os. as over 12 oz., \$\psi_1\$ ft. Brasiers Copper, 10 os and 12 oz., \$\psi_2\$ sq. ft. Circles less than \$4\$ in. In diameter circles \$4\$ in. diameter and over. Segment and Pattern Sheets. Locomotive Fire Box Sheets. Locomotive Fire Box Sheets. Sheathing Copper, over 12 oz. \$\psi_2\$ sq. ft. Gotte Copper Bottoms. No Copper is Sheathing except 14x45 inche to exceed 42 oz. to the \$6q. ft.
Slips P b 100 Slips P b 100 Slips P b 60 Sla 50820 Slips P b 60 Sla 50820 Slips No 1, F b 200 Slips No 1, F b 500 Ansas Stone No 1, F b 500 Slips Slips Slo 50 Slo 50 Slo 5	Brasiers Copper, ordinary sizes, it os. as Brasiers Copper, to os and 12 os., \$\psi\$ sq. ft. Brasiers Copper, to os and 12 os., \$\psi\$ sq. ft. Circles less than \$\psi\$ in in diameter circles \$\psi\$ in. diameter and over. Segment and Pattern Sheets. Locomotive Fire Box Sheets. Locomotive Fire Box Sheets. Sheathing Copper, over 12 os. \$\psi\$ sq. ft. Bolt Copper. Copper Bottoms. No Copper is Sheathing except 14x35 inche to exceed \$\psi\$ os. to the sq. terminal transition of the sq. ter
Stone	O'NEILL S PATENT PLANISHED COVERS
Stone	O'NEILL S PATENT PLANISHED COVERS
Silps	14 and 16 oz. and heavier. # \$ 34c By the call 2 oz. and lighter # \$ 37c " or "
Slips	7 In., 1435. 14 and 16 oz. and heavier. # B 34c 12 oz. and lighter. # B 37c 80 iter Stees. 7 in., 1435.8 in., 1435. 14 and 16 oz. and heavier. # B 36c By the ca. And all sizes not over 20 in. wide.
el Piated	14 and 16 oz. and heavier. # B 54c By the ca 12 oz. and lighter. # B 57c Botter Stees. 14 and 16 oz. and heavier. # B 50c By the ca 6 in., 14x56 oin., 14x56 oin., 14x66 (And all sizes not over 20 in. wide. 30x50. 14 and 16 oz. and heavier.
cal Plated	14 and 16 oz. and heavier. # B 54c By the ca 12 oz. and lighter. # B 57c Botler Stees. 14 and 16 oz. and heavier. # B 50c By the ca (And all sizes not over 20 in. 14x6c 14 and 16 oz. and heavier. # B 56c By the ca (And all sizes not over 20 in. wide.
el Plated add \$2.50 @ \$4.50 @ \$4.50. net } Cash Squares and T Bevels	14 and 16 oz. and heavier. # B 54c By the ca 12 oz. and lighter. # B 57c Botter Stees. 14 and 16 oz. and heavier. # B 50c By the ca 6 in., 14x56 oin., 14x56 oin., 14x66 (And all sizes not over 20 in. wide. 30x50. 14 and 16 oz. and heavier.
cal Plated	I and i ow and heavier 1 1 2 3 4 cc By the ca 12 0z. and lighter
cel Plated	A and i ox and heavier. 1324, 34c By the ca is ox and lighter. 1504er Sixes. 7 in, 1435. 8 in, 1435. 9 in, 1435. 14 and i ox. and heavier. 15 is ox. By the ca (And all sixes not over 20 in, wide. 30x50. 14 and i ox. and heavier. 15 is ox. Brown & Brass. Brown & Sharp & Gauge the Standard for Brass Manufacturers 15 in English Gauge the Standard for Wights Manufacturers. 15 in Brass. For tity than 100 bs. add 30 \$\tilde{V}\$ B. Isos Brass. Not thinner into Bases. Not thinner than to No. 28, wider than to wider than 14 lin Brass. In ot wider than 14 lin Brass. In ot wider than 14 lin Brass. In the line wider than 14 line wider than 15 in Brass. In the line wider than 14 line wider than 14 line wider than 15 in Brass. In the line wider than 14 line Brass. In the line
cel Plated	A and i 6 ox. and heavier. 1324. 12 oz. and lighter. 150 oz.
kel Plated. add \$2.0 @ \$4.0 \$\pi\$ cash. Squares and T Bevels. dis 45to \$ Try Squares and Bevels. dis 35 ton's Try Squares and T Bevels. dis 35 ton's Try Squares and T Bevels. dis 45 ton's Try Squares and T Bevels. dis 55 ton's Try Squares and T Bevels. dis 55 ton's Try Squares and T Bevels. dis 55 to \$15 ton's Try and Mitre. dis 55 ton's Try Box Squares and T Bevels. dis 55 to \$25 ton's Try Box Squares and T Bevels. dis 56 to \$5 ton's Ton'	A and if ox. and heavier. 1328, 34c By the ca is oz. and lighter. 150 boler Sizes. 7 in., 1435. 8 in., 1435. 9 in., 1435. 14 and 16 oz. and heavier. 15 bole By the ca (And all sizes not over 20 in. wide. 30300. 14 and 16 oz. and heavier. 15 bole By the ca (And all sizes not over 20 in. wide. 12 ox. Brass. Brown Sizes over 20 in. wide. 15 complete Gauge the Standard for Wigness Manufactureness and Sizes over 15 complete Gauge the Standard for Wigness Manufactureness over 15 complete Cash prices for Roll and Sheet Brass. For tity than 100 bs. 3dd 3g F b. All Nos. not thinner than 10 No. 26, wider th. not wider than 14 in. All Nos. to No. 28, inclusive, and widths over 20 in., inclusive. All Nos. to No. 28, inclusive, and widths over 30 in., inclusive. 30 in., inclusive. 41 Brass thinner than No. 38 is Platers' Brass.
kel Plated add \$2.0 @ \$4.0 \$\tilde{\psi}\$ cash of \$\tilde{\psi}	A and if ox. and heavier. 1328, 34c By the ca is oz. and lighter. 150 boler Sizes. 7 in., 1435. 8 in., 1435. 9 in., 1435. 14 and 16 oz. and heavier. 15 bole By the ca (And all sizes not over 20 in. wide. 30300. 14 and 16 oz. and heavier. 15 bole By the ca (And all sizes not over 20 in. wide. 12 ox. Brass. Brown Sizes over 20 in. wide. 15 complete Gauge the Standard for Wigness Manufactureness and Sizes over 15 complete Gauge the Standard for Wigness Manufactureness over 15 complete Cash prices for Roll and Sheet Brass. For tity than 100 bs. 3dd 3g F b. All Nos. not thinner than 10 No. 26, wider th. not wider than 14 in. All Nos. to No. 28, inclusive, and widths over 20 in., inclusive. All Nos. to No. 28, inclusive, and widths over 30 in., inclusive. 30 in., inclusive. 41 Brass thinner than No. 38 is Platers' Brass.
kel Plated	A and if ox. and heavier. 1328, 34c By the ca is oz. and lighter. 150 boler Sizes. 7 in., 1435. 8 in., 1435. 9 in., 1435. 14 and 16 oz. and heavier. 15 bole By the ca (And all sizes not over 20 in. wide. 30300. 14 and 16 oz. and heavier. 15 bole By the ca (And all sizes not over 20 in. wide. 12 ox. Brass. Brown Sizes over 20 in. wide. 15 complete Gauge the Standard for Wigness Manufactureness and Sizes over 15 complete Gauge the Standard for Wigness Manufactureness over 15 complete Cash prices for Roll and Sheet Brass. For tity than 100 bs. 3dd 3g F b. All Nos. not thinner than 10 No. 26, wider th. not wider than 14 in. All Nos. to No. 28, inclusive, and widths over 20 in., inclusive. All Nos. to No. 28, inclusive, and widths over 30 in., inclusive. 30 in., inclusive. 41 Brass thinner than No. 38 is Platers' Brass.
kel Plated add \$2.0 @ \$4.00 \$ dos, net 1 Cash. Squares and T Bevels dis 45.5 to 1 Ty Squares and T Bevels dis 35.5 to 1 Ty Squares and T Bevels dis 35.5 to 1 Ty Squares and T Bevels dis 45.5 to 1 Ty Squares and T Bevels dis 50.10 Squares and E Squares	All Nos. No. 28, inclusive, and widths ovo 18 Nos. No. 28, inclusive. All Nos. No. 28, inclusive, and widths ovo 20 in, inclusive. All Nos. No. 28, inclusive, and widths ovo 20 in, inclusive. All Nos. No. 28, inclusive, and widths ovo 20 in, inclusive. All Nos. No. 28, inclusive, and widths ovo 20 in, inclusive. All Nos. No. 28, inclusive, and widths ovo 30 in, inclusive. All Nos. No. 28, inclusive, and widths ovo 30 in, inclusive. All Nos. No. 28, inclusive, and widths ovo 30 in, inclusive. All Nos. No. 28, inclusive, and widths ovo 30 in, inclusive. All Nos. No. 28, inclusive, and widths ovo 30 in, inclusive. All Nos. No. 28, inclusive, and widths ovo 30 in, inclusive. All Nos. to No. 28, inclusive, and widths ovo 30 in, inclusive. All Brass thinner than No. 38 is Platers' Brasshets 24x48, and all sheets cut to particuland lengths under 30 in, in width wider the Printers' Rules. Circular Sheets, in diam. from 4 in, to 14, inclusive and inclusive than 30 in, and under 40 in. Circular Sheets, in diam. from 4 in, to 14, inclusive and inclusive than 30 in, and under 40 in. Over 14 29, 49, 50, 40, 40, 40, 40, 40, 40, 40, 40, 40, 4
kei Plated add \$2.50 @ \$4.00 \$ dos. net 1 Case. Squares and T Bevels dis 45to 5 Try Squares and T Bevels dis 35 ton's Try Squares and T Bevels dis 35 ton's Try Squares and T Bevels dis 35 ton's Try Squares and T Bevels dis 55 terbottom's Try and Mitre dis 56 ter's Try Squares and T Bevels dis 56 ter's Squares and T Bevels dis 56 terbottom's Try and Mitre dis	And fo ox and heavier. *** *** *** *** *** *** *** *** *** *
kel Plated add \$2.50 @ \$4.00 \$ dos, nef) Cash Squares and T Bevels dis 45to 5 Try Squares and T Bevels dis 35 ton's Try Squares and T Bevels dis 35 ton's Try Squares and T Bevels dis 45 terbottom's Try and Mitre dis socio 5 terbottom's Try and Mitre dis socio 5 terbottom's Try and Mitre dis socio 6 tole-Pointed Tacks	And fo ox and heavier. ** ** ** ** ** ** ** ** ** ** ** ** **
kel Plated add \$2.50 @ \$4.00 \$ dos, nef) Cash Squares and T Bevels dis 45.5 Tyr Squares and T Bevels dis 35.5 Tyr Squares and T Bevels dis 35.5 ton's Try Squares and T Bevels dis 45.5 taterbottom's Try and Mitre dis socio 5 taterbottom's Try and Mitre dis socio 5 taterbottom's Try and Mitre dis socio 5 taterbottom's Try and Mitre dis socio 6 taterbottom's dis socio 6 taterbottom	And is ox and heavier 1 2 3 4 5 1 1 2 2 2 1 1 2 2 2 1 1 2 2 2 1 1 2 2 2 1 1 2 2 2 1 2 2 2 1 2
kel Plated add \$2.50 @ \$4.00 \(\) coas. net \(\) Cash Squares and T Bevels dis \$450 \(\) ton's Try Squares and T Bevels dis \$35 ton's Try Squares and T Bevels dis \$45 \text{ ton's Try Squares and T Bevels dis \$45 \text{ terbottom's Try and Mitre dis \$65 \text{ terbottom's Try and Mitre dis \$66 \text{ to \$65 \text{ terbottom's Try and Mitre dis \$66 \text{ to \$65 \text{ terbottom's Try and Mitre dis \$66 \text{ to \$65 \text{ t	And fo ox and heavier 12. 4 and fo ox and heavier 12. 5 sec 12 oz. and lighter 2. 4 by 5 sec 12 oz. and lighter 3. 5 sec 14 and fo ox and heavier 7 by 5 co 15 sec 14 and 16 ox and heavier 7 by 5 co 15 sec 14 and 16 ox and heavier 7 by 5 co 15 sec 15 sec 14 and 16 ox and heavier 7 by 5 co 15 sec
kel Plated. add \$2.50 @ \$4.00 \(\) does, net \(\) Cash Squares and T Bevels. dis 45th of Try Squares and T Bevels. dis 45th of Try Squares and T Bevels. dis 45th of Try Squares and T Bevels. dis 45th ther bottom's Try and Mitre. dis sockto \$ dis 45th of the Squares and T Bevels. dis 15th of the Squares and T Bevels. dis 25th of the Squares and T Bevels. dis 25th of the Squares and T Bevels. dis 25th of the Squares and Help of the Squares and His 15th of the Squares and His 25th	And 16 ox. and heavier. 12 34c. By the ca 12 oz. and lighter. 25 34c. By the ca 12 oz. and lighter. 26 36c. By the ca 26 36c. And all sizes not over 20 in. 14 36c. And 16 oz. and heavier. 27 35c. By the ca 27 30x. Brass. 30x5o. 14 and 16 oz. and heavier. 27 35c. By the ca 27 20x. Brass. 30x5o. Brass. Brown & Sharp's Gauge the Standard for Minary and 16 oz. and heavier. 27 30x. Brass. Brown & Sharp's Gauge the Standard for Minary and 16 oz. and heavier. 27 30x. Brass. Brown & Standard for Minary and 16 oz. and 16
kel Plated. add \$2.0 @ \$4.00 \$ dos, net 1 Cash Squares and T Bevels. dis 45 to 5 Try Squares and Bevels. dis 35 ton's Try Squares and T Bevels. dis 45 ton's Try Squares and T Bevels. dis 45 ton's Try Squares and T Bevels. dis 55 ton's Try Squares and T Bevels. dis 55 ton's Try Squares and T Bevels. dis 55 to 5 ton's Try and Mitre. dis 50 to 5 ton's Try and Mitre. dis 50 ton's Try and Mitre. dis 50 ton's Try and Mitre. dis 50 ton's ton	And 16 ox. and heavier. 12 34c. By the ca 12 oz. and lighter. 25 35c. By the ca 12 oz. and lighter. 26 36c. By the ca 26c. This is a second lighter. 26 36c. Sizes. 7 in., 14X5. 8 in., 14X5. 14 and 16 ox. and heavier. 27 35c. By the ca 27 ox. 27 ox
kel Plated add \$2.50 @ \$4.00 \$ dos. net 1 Cash. Squares and T Bevels dis 45.5 Try Squares and Bevels dis 45.5 ton's Try Squares and T Bevels dis 5.5 tolerbottom's Try and Mitre dis 5.5 tolerbottom's Try and Mitre dis 5.5 tolerbottom's Try and T Bevels dis 5.5 tolerbottom's Try and T Bevels dis 5.5 tolerbottom's Try and Mitre dis 5.5 tolerbottom's Try and Mitre dis 5.5 tolerbottom's Try Borers dis 5.5 tolerbottom's Try Borers dis 5.5 tolerbottom's Try Borers dis 5.5 tolerbottom	And 16 ox. and heavier. 12.24. 14 and 16 ox. and heavier. 25 36c. 15 ox. and lighter. 26 36c. 16 ox. and heavier. 27 35c. 16 ox. and heavier. 27 35c. 17 ox. 30x50. 18 and 16 ox. and heavier. 27 35c. 19 ox. 30x50. 19 ox. 30x50. 19 ox. 30x50. 11 ox. 30x50. 11 ox. 30x50. 12 ox. 30x50. 12 ox. 30x50. 13 ox. 30x50. 14 and 16 ox. and heavier. 20x50. 15 ox. 30x50. 16 ox. 30x50. 17 ox. 30x50. 18 ox. 30x50. 19 ox. 30x50. 10 ox. 30x50. 11 ox. 30x50. 11 ox. 30x50. 12 ox. 30x50. 11 ox. 30x50. 12 ox. 30x50. 12 ox. 30x50. 13 ox. 30x50. 14 and 16 ox. and heavier. 30x50. 15 ox. 30x50. 16 ox. 30x50. 17 ox. 30x50. 18 ox. 30x50. 19 ox. 30x50. 10 ox. 30x50.
kel Plated. add \$2.50 @ \$4.00 \$\forall \text{ cash of cots. net } \text{ cash of cots. } \t	And fo ox and heavier \$\frac{\partial}{\partial} \text{3} \text{3} \text{4} \text{2} \text{3} \text{4} \text{2} \text{3} \text{4} \text{3} \text{4} \text{3} \text{4} \text{5} \text{5} \text{5} \text{4} \text{1} \text{4} \text{5} \text{5} \text{5} \text{1} \text{1} \text{4} \text{4} \text{6} \text{4} \text{4} \text{6} \text{4} \text{4} \text{6} \text{4} \text{6} \text{4} \text{6} \text{4} \text{6}
Rel Plated	And for ox and heavier \$\frac{1}{2} \text{ and for ox and heavier \$\frac{1}{2} \text{ be set} \text{ By the can 12 oz. and lighter \$\frac{1}{2} \text{ be set} \text{ boder Strees.} } 7 \text{ in, 14x52.} 8 \text{ in, 14x52.} 8 \text{ in, 14x52.} 8 \text{ in, 14x52.} 1 \text{ in, 14x52.} 8 \text{ in, 14x52.} 1 \text{ in, 14x52.} \text{ in, 16x52.} \text
cal plated	14 and i one and heavier \$\frac{1}{2} \text{ 34c} \text{ 15 oz.} and lighter \$\frac{1}{2} \text{ 35 oz.} \text{ 16 oz.} and lighter \$\frac{1}{2} \text{ 36 oz.} \text{ 36 oz.} \text{ 16 oz.} \text{ 37 oz.} 37 o
kel Plated. add \$2.50 @ \$4.00 \$\forall \text{ cash of cots. net } \text{ cash of cots. } \t	And for and heavier # 5 4cc By the call 20. and lighter # 5 3cc By the call 20. and lighter # 5 3cc By the call 20. and lighter # 5 3cc By the call 20. and lighter # 5 3cc By the call 20. and lighter # 5 3cc By the call 20. and lighter # 5 3cc By the call 20. and lighter # 5 3cc By the call 20. and lighter # 5 3cc By the call 20. and lighter # 5 3cc By the call 20. and lighter # 5 3cc By the call 20. and lighter # 5 3cc By the call 20. and lighter # 5 3cc By the call 20. and lighter # 5 3cc By the call 20. and lighter # 5 3cc By the call 20. and lighter # 5 3cc By the call 20. and lighter # 5 3cc By the call 20. and lighter # 5 3cc By
Red Plated	And for ox. and heavier 1 2 3 4cc By the can 12 0z. and lighter 2 30 4cc By the can 2 12 0z. and lighter 2 30 4cc By the can 3 11. 12 3z. 2 11. 12 0z. 2 11. 12 0
kel Plated add \$2.50 @ \$4.00 \$ dos. net \$ Cash Squares and T Bevels dis 45 stor's Try Squares and T Bevels dis 35 stor's Try Squares and T Bevels dis 45 stor's Squares and T Bevels dis 46 stor's Squares and Ris dis 46 story Squares and Cheese dis 46 story Squares and Cheese dis 50 story	And for ox. and heavier 1 2 30 4c By the can 12 0z. and lighter 2 30 4c By the can 2 12 0z. and lighter 2 30 4c By the can 3 0z. and lighter 2 30 4c By the can 4 3c
kel Plated add \$2.0 @ \$4.0 \$\tilde{V}\$ cash of Cash. net \$\) Squares and T Bevels dis \$45 ston's Try Squares and Bevels dis \$35 ston's Try Squares and T Bevels dis \$45 ston's Try and Mitre dis \$45 ston's Try and Mitre dis \$45 ston's Try and Mitre dis \$45 ston's Tash Borers dis \$45 ston's Try Borers	And for ox. and heavier 1 2 30 4c By the can 12 0z. and lighter 2 30 4c By the can 2 12 0z. and lighter 2 30 4c By the can 3 0z. and lighter 2 30 4c By the can 4 3c
Rec Plated	And for ox. and heavier. ** ** ** ** ** ** ** ** ** ** ** ** **
Space Cutters, the provided and space of the provise Mg. Co. (Champion). Space of Bottom. S	And if one and heavier. ** ** ** ** ** ** ** ** ** ** ** ** **
keel Plated	And 16 ox. and heavier. 18 b 34c By the ca 12 oz. and lighter. 18 b 34c By the ca 7 in., 14x52. 8 in., 14x56. 9 in., 14x6 14 and 16 oz. and heavier. 18 55c By the ca (And all sizes not over 20 in. wide. 30x50. 14 and 16 oz. and heavier. 18 55c By the ca (And all sizes not over 20 in. wide. 30x50. 14 and 16 oz. and heavier. 18 55c By the ca (And all sizes not over 20 in. wide. 30x50. 14 and 16 oz. and heavier. 18 55c By the ca (And all sizes not over 20 in. wide. 30x50. 14 and 16 oz. and heavier. 18 55c By the ca (And all sizes not over 20 in. wide. 18 50x50 By the ca (And all sizes not over 20 in. wide. 18 50x50 By the ca (And all sizes not over 20 in. wide. 18 50x50 By the ca (And all sizes not over 20 in. wide. 18 50x50 By the ca (And all sizes not over 18 50x50 By the ca (And all Nos. to No. 28, inclusive, and widths ov. 20 in., inclusive, and widths ov. 20 in. width width ov. 20 in. width width ov. 20 in. width width in. and under 40 in. 20 in. and and under 40 in. 20 in. and and under 40 in. 20 in. and under 40 in. 20 in. and and under 40 in. 20

	THE PRON AG
hnson's.	No.23
ppleton's ————————————————————————————————————	\(\begin{array}{cccccccccccccccccccccccccccccccccccc
rotective Ventilator Co. 8	No.28
ass and Copper List of July 1, 1878 dis 10 ight and Annealed Nos. 0 @ 18. dis 52 ig @ 55	No.30. 93 97 61 8 No.31. 97 61 64 66
" Nos. 19 @ 20, dls 52½ @ 50.2 "Nos. 27 @ 20, dls 52½ @ 50.2 "Nos. 27 @ 20, dls 52½ @ 50.2 "Nos. 0 @ 18, dls 47½ @ 50.2	NO.33
ivanized, Nos. o to 6	Spring Wire 2c ? B advance. Flat, Square and Half Round Wire 4c ? B advance on Round Wire. Fancy Wire not less than 10c ? B advance of Round Wire.
st Steel	Wire, Brass Rods, No. 8 and larger not less than 2 fee lengths, 33c.
Grape, Nos. 10 to 14	Errass Rods, No. 8 and larger not less than 2 fee lengths, 38c. Wire straightened and cut, smaller than No. 8, and not less than 2 feet lengths, 38c. Wire and Rods less than 2 feet lengths, special rate Twelve cents per Bettra for spooling on 1 to 8 spool of the Strategy of the Strateg
** Nos. 10 and 11	Wire and Rods less than 2 feet lengths, special rate Twelve cents per B extra for spooling on 1 B spool MESCELLANEOUS.
" Staples, Galvanized	C Common Plain Brass Pail Ears
alvanized "	High Brass Scrap
wire Cloth. Inton, green or drab. by the roll, per sq. ft. 3%c ne	t Turnings, Filings and Chips half the price of Scrap. Terms—Net cash. Interest to be added after third
Mreuches. merican Adjustabledis 45 ?	days, Plain to No. 20 inclusive, above 14 in. to 3 in
xter's Adjustable "S," dis 20; " Diagonal dis 20; billins & Co.'s dis 45;	nos. 21, 22, 23, two cents advance on List for each Nos. 21, 22, 23, two cents advance on List for each Number.
oes' Genuine	Nos. 24, 25, 26, four cents advance on List for each Number. Above No. 26, special rates.
rard dis 50& 10& 10 ndsay's dis 25	Plain, ¼ inch
avis' Patent Duplex	All Mandrel Drawn Tubes, 5 cents advance on List Prices.
## Merrick's Pattern	Fancy Tubing to No. 20. English, Scotch and Extra Patterns Fancy Tubing to No. 20. Tubing Sawed or Cut 2 to 4 feet long, 2 cents advance on List.
ken Pocket (Bright)	Tubing Sawed or Cut 2 to 4 feet long, 2 cents advance on List. Add to 2 cents 1/2 cent for each additional cutting under 2 feet.
" No. 136 71.0	under 2 feet. All Mandrel Drawn Tubes under 1/6 in., 25 cents per
### Wire Cloth. #### Wire Cloth. ##### Wire Cloth. ###### Wire Cloth. ###################################	All Mandrel Drawn Tubes under 36 in., 25 cents per pound advance. EINC TUBING.—net.
ricka, No. 10, with Cog Wheels. 60,0 "No. 2, " 63.0	Plain. Fancy. Scotch and Extra Patterns. 4 Per cent. 9 " " " "
ceelsior, No. A, with Folding Bench	4 Per cent.
" No. 2, Iron " " 54.0 " No. 10, Wood " Common Gear	0 0 12 I.
NO. 3 71.01 71.01 NO. 216 60.00	0 18 · · · · · · · · · · · · · · · · · ·
Stamped Tinware. mmon Stamped Ware, L. & G. List, April, 1878,	STEEL, DUTY: Bars, Ingots, Sheets and Coil valued at years & Br., or under, 244 cents; ever, cents, and not above it, scents & B; over it, 34 cents of the state
mmon stamped ware, L. & G. List, April, 1076, dis 50&10	* B, and to % ad val. Railway Bars, 14 cents \$ 1 Railway Bars, in part Steel, 1 cent \$ B. Provided that Metal cemented, cast or made from Iron by the
METALS.	Bessemer or pneumatic process, of whatever form of description, shall be classed as
	Bessemer or pneumatic process, of whatever form of description, shall be classed as American Cast Steel. Tool
(ON.—Durv: Bars, 1 to 13/c. \(\pi \) m; Sheet, Band doop and Scroll, 13/c to 13/c. \(\pi \) m; provided, that nom of the above iron shall pay a less rate of duty than 3 ere cent. Pig. \(\pi \) von; Polished Sheet, 5c. \(\pi \) to 7 rought Scrap, \(\pi \) von; Polished Sheet, 5c. \(\pi \) to 1 store bs. Boller and Plate, 13/c. \(\pi \) m additional 5c. \(\pi \) m bs. Boller and Plate, 13/c. \(\pi \) m oundry No. \(\pi \) to m 16.5c \(\pi \) rought 16.5c \(\pi \) to 1 16.5c \(\pi \) ray Forge \(\pi \) to 1 16.5c \(\	Boiler Plate
er cent. Pig, \$7 \$7 ton; Polished Sheet, 3c. \$1 b. Wrought Scrap, \$8 \$1 ton: Cast Scrap, \$6 per ton Railroad, 70c. \$1 100 Bs. Boiler and Plate, 1½c. \$1 b.	Machinery (round and square)
	Saw Plate, mill and mulay 14 @ 16
Gray Forge It ton 14.50 @ 10.00 14.50 14.50 15.00	Tool
Eglinton	Machinery b 8@ 10
nils.	Gun or Homogeneous. # B 12 @ 16 English Steet,—Payable in gold, net. Best Cast. # B 15/4
rap. Vrought Scrap, from yard \$\varphi\$ ton, nom. 21.00 @ 22.00	Extra Cast W B 16% R Round Machinery, Cast W B 16% Swaged, Cast W B 180
mmon Iron:	Best Double Shear
to 2 in, round and square	" ad quality # B noc " ad quality # B noc Sheet Cast Steel vst cupity
fined tron:	ad quality P B 1436
Sheet Iron. Common R. G. American. American.	Bar
American. American. 21 to 24. P b 3 c 4 25 to 26. P b 34c 44 25 to 26. P b 34c 44	Sheet
25 to 26	Shot. Drop 3/6 Buck, 3/4c, dis to BARRITY BETAL. N. P. U. P. B. 6 @ 7 A 20c; B. 40c; C. 120; D. 10c \(\psi \) B. 6 @ 7 TIN. DUTY: Plates, Sheets, Tagger and Terne, 1.10; B.; Elecro-galvanized Plates, 2 c \(\psi \) B. Manufacture of, not enumerated, 35 per cent. ad. val. Bars, Block and Pigs free. Banca, subject to duty of 10 per cent. Bancs. Straits. P. B. 15/6 @ 16 currenc; English. TIN PLATES, CURRENCY PRICES.
vanized, 14 to 20, B. B.	TIN.—DUTY: Plates, Sheets, Tagger and Terne, Lic ? B; Electo-galvanized Plates, 2c \$ B; Manufacture of, not enumerated, 35 per cent. ad. val. Plars, Block
25 to 26.	and Pigs free. Banca, subject to duty of 10 per cent Banca. Banca
ssia, Nos. 8 to 16 B II @ 1114c	English
PPPER.—DUTY: Pig, Bar and Ingot, 5c; Old Coper, 4c & b; Manufactured (including all articles of thich Copper is a component of chief value), 45 % ad	I C 10X14) 12X12 Prime Charcoal
alorem. P B See Trade Report. SHEATHENO, BRAZHERS' COPPER, BOLTS, &c. Lifers' Copper, ordinary sizes, over 15 02., P B 280.	IX 10X14/ 12X12 Prime Charcoal
giers' Copper, ordinary sizes, over 10 02., # B 28c giers' Copper, ordinary sizes, 16 08. and	DX 12/3417 7.75 @ 3.0 DX 12/3417 7.75 @ 3.0
sq. ft	I C 10X14 Best. 2d quality. Ordinary
Cles less than of this is distincted	I C 14X20)
comotive Fire Box Sheets	Prime Char. 2d quat. Coke. I C 14x2e \$5,50 \(\) \$5,50 \(\) \$5,50 \(\) \$5,52\(\) \$5,25 \(\) \$
t Copper. P 38c pper Bottoms. P 39c o Copper is Sheathing except 14x48 inches and not exceed 34 ox. to the sq. ft.	I V 20X28 12.00 (# 12.25
	1C 202200 (6 19.00 1 C LYZO M. F. Brand (87.24 SO LDKR No. 1, 9 @ 100 No. 2, 8 % @ 00 SPELTER—DUTY: In Pigs, Bars and Plates, 5: 9 100 No. 2
48, by the case	
nd 16 oz. and heavier \$\psi\$ 32c By the case. \$\psi\$ 33c z. and lighter \$\psi\$ 37c \$\psi\$ \$\p	Lehigh, on spot
7 in., 14x52. 8 in., 14x56. 9 in., 14x60. and 16 oz. and heavier. \$\psi\$ by 50c By the case. \$\psi\$ b 350 (And all sizes not over 20 in. wide.)	Sheet, Cask
nd 16 os. and heavier # 15 38c	Paper Stock, Old Metals, &c
Bruss. Bruss. We Blace over & Sharp's Gauge the Standard for Meta; Old English Gauge the Standard for Wire.	Canvas linen (Dealer's Selling Price.) 4 @ 44
English Gauge the Standard for Wire. BRASS MANUFACTURERS' PRICE LIST.—dis 10 %. July 1, 1878.	Canvas lineri (Dealer's Selling Price.) Canvas lineri 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
ash prices for Roll and Sheet Brass. For less quantan 100 Bs. add 30 F B. HIGH BRASS.	Seconds No. 2
Nos. not thinner than to No. 28, wider than 2 in., twider than 14 in	Mixed woolens
Nos. to No. 28, inclusive, and widths over 14 to in., inclusive	Jute Butts. 3 @ 3% Kentucky bagging 5 @ Waste paper and scraps 6 4
in., inclusive	Rope cuttings
usive. Brass thinner than No. 38 is Platers' Brass. at48c ets 24x48, and all sheets cut to particular sizes at lengths under 30 in., in width wider than 2 in. 32c aters' Rules	No. 2. Grass rope
ters wider than 30 in. and under 40 in	White collar cuttings, all paper
tets wider than 30 in. and under 40 in	" Envelope mustin lined 5 6 Hard White Shavings, No. 1 3 6 No. 1 34 6 White Shavings, No. 2 34 6 White Shavings, No. 2 34 6 White Shavings, No. 2 34 8
" 30 40, "	White Shavings, No. 2. 34 # Mixed Shavings, part white 24 @ Imperfections, No. 2, best folded sheets. 44 @ No. 1, Heavy Stock. 44 @
LOW BRASS.	Book Stock. 64 66 134 146 146 146 146 146 146 146 146 146 14
ters' or Gold Metal Sawed 430 Planed or Polished 490	" Light. 114 @ Newspaper Stock. 114 @ 2
FOR SLITTING.	Book Stock 4 374 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
al in width 2 in. to 25 in. to No. 28, inclusive, ic. \$\psi\$ advance, al, in width 2 in to 1 in., thinner than No. 28, 2c. \$\psi\$ advance, al, in width 1 in. to \$\psi\$ thinner than No. 28, 3c \$\psi\$ is transce	Binders' Board Cuttings
al, in width 1 in. to 1/4 thinner than No. 28, 30 P B lyance. al, in width 1/4 in. to 1/4, inclusive, not thinner than	Woolen Tailor Clips
vance. al, in width ½ in. to ½, inclusive, not thinner than b, 28, 20. F B advance. al, in width ½ in. to ½ thinner than No. 28, 50. F advance.	Copper Bottoms. 15 @ 1256
al, 4 in. in width and less, for. w B advance. of the above widths cut to particular lengths, add	Brass, light 8 8 6
GERMAN SILVER MARKET METAL AND WIRE. Market Metal. Wire.	Copper, heavy
er cent., 12 inch, to No. 26	ZincPewter, No 1
66 66 66 66 66 66 66 66 66 66 66 66 66	11 No. 2
than to be \$2.00 W B.	2 2 2 2 2 2 2 2 2 2
than to ba., \$2.00 \(\psi \) b. [vance 2c, for each additional inch in width above and se. \(\psi \) be each No. thinner than Nes. 26 to	" No. 2. Be for \$17.00 Machinery Iron. Der ton \$17.00 Machinery Iron. Der ton 11.00 Light Iron. Der ton 10.00 Stove Plate. Der ton 10.00 Grate Bars. Der ton 4.00
L, and 2c. w b on each No. thinner than Nes. 20 to neclusive 1 German Silver thinner than No. 36 is Platers, at	Stove Plate
and 20, w m on each No. thinner than Nes. 20 to	Stove Plate

Blue Chinese dry83e	Sundr	ies.			
Ultramarine18@ 300	Asphatu m				00
Van Dyke	Chark			· · · · · · · · · · · ·	(al. 160
Carmine, 40combination price	" Block Dryer, Patent, Am'n Frostings. Glue, White				349
" in oil	Dryer, Patent, Am'n	ass't	cans,	109601	keg.gc
Paris	Glue, White				3 @ 440
146	Glue, White. "Sheet. Glasters Points, Zinc. Glum, Copal. "Damar. "Shellac, English. "Itharge, English. "Mineral Wool. Pumic Stone, selected Lump. Putty, in bladders. Putty, in bladders.				200
Red P 5 2c Brown P 5 1/4c	Gum, Copal				960
Purple.	Damar				250
"Ground in Oil, Bright Red P m 554c	dark.				956
Red	Litharge, Englisgh			9	e gola
Purple. \$\psi\$ \$	Pumic Stone, selected Lump	6.		m 15%	@ IME
Mineral Paints	" powdered				2940
Red Lead, American	Putty, in bladders				2500
English	" in bulk Rotten Stone, soft, English				80
Orange Mineral 130 Red Lead, American 75c English 95c gold Wenetian (N. C.) dry 81.70 (8 81.75 In oll asst'd caus, ric; kegs, 8c	Spirits Turpentine				. 320
Indian dry	Whiting SpanishGlas	M .			
Indian dry	Prices current pe	OW GL	ASS.		
Burnt45ge	Single Thick,—d				-
" In oil to @ 16 @ 20e " Raw " II @ 15 @ 25e Umber, Burnt 4 @ 8c	SIZES.	ıst.	ad.	3d.	4th
	b x 8 to to x rs	8 7 50	86.00	8 6.25	8 5-74
Raw	6 X 8 to 10 X 15				6.50
" in oil	13 X 22 to 20 X 30	10.75	9-75	0.00	7 79
" English for gold	20 X 28 to 24 X 30	13.00	11.50	9.75	
A morigan Common	26 X 37 to 26 X 44	14.50	13.25	10.75	
White Lead, American, pure dry8c	30 X 52 to 30 X 54 30 X 56 to 34 X 56	16,60	14.00	11.25	
White Lead, American, pure dry	30 x 56 to 34 x 56	17.25	15.50	13.50	
Yellow Ochre, French	36 x 60 to 40 x 60	20.75	17.25	15,00	
" Vermontin casks 114c	Double Thick		nt foot i		
Yellow Chrome. 17 @ 270 l	SIZES.	ıst.	2d.	3d.	41 0.
Zinc White, American No. 1, dry	6 x 8 to 10 x 15	812.00	BIT OO	910.00	
No. 1, in oil	11 X 14 to 10 X 24	13.75	12.50	11.75	10.5
" French (Paris)	18 x 22 to 20 x 30 15 x 36 to 24 x 30	17.25	15.75	14.00	
111 011 1076 (8 11790	26 x 28 to 24 x 26	19.75	17.25	14.50	
Oils.	26 x 36 to 26 x 44.	23,25	21.25	17.25	
Linseed. Raw, in casks and bhis West record	26 X 46 to 30 X 50	24.00	22.50	19,25	
" Boiled. " " 620 @ 640	30 X 52 to 30 X 54. 30 X 56 to 34 X 56. 34 X 58 to 34 X 60.	27.75	25,00	21.75	
Linseed, Raw, in casks and bbls. # gal. 57c @ 50c Bolled " " 55c % 54c Whale, Crude bbl, 45c @ 55c " Bleached Winter bbl, 57c @ 50c " Unbleached bbl, 52c @ 55c Cotton Seed, Crude bbl, 50c " White bbl, 55c White bbl, 55c Neatsfoot, Winter bbl, 50c	36 X 60 to 40 X 60	29.25	30,00	24.00	
" Unbleachedbbl, 53c @ 55c	Sizes above 40 x 60-810.00				OVOEY
Cotton Seed, Crudebbl, soc	five inches.				
White bhl 600	An additional to per cent. Glass more than 40 inches	will t	All als	rged r	OP all
	inches in length, and not ma	kingn	lore th	an 81 t	inited
Neatsfoot, Winter 700 @ \$1.10 Natural Lubricating 360 @ \$80	inches, will be charged in th			ches hi	20042

Hardware, Iron & Nails,

Bolts, Nuts, Washers, Screws, &c.



TRADE SPECIALTIES.

Globe Horse Nails, Putnam Horse Nails, National Horse Nails, Buffalo Forged Horse Nails, Burden Horse Shoes, Walker Horse Shoes, Providence Horse Shoes, Toe Calks, Cast Steel, Bellows, Anvils and Vises, Ausable Horse Nails.

FRANCIS' AXES, full Assortment. Special Brands—"KING OF THE FOREST," ROYAL WOOD CHOPPER."

Correspondence and orders solicited.

Lyon's Patent Hand & Power

Shears, Punches, Drills, Etc.

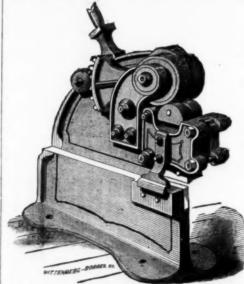


PLATE SHEARS,

No. 5 will cut 7-16 Iron

through center of sheet.

Manufactured only by

G. B. Walbridge & Co

83 Reade St., NEW YORK.

E. E. SOUTHER & BRO.,

St. Louis, Mo.,

AGENTS.

SIDNEY SHEPARD & CO.,

THE BUFFALO STAMPING WORKS.





MANUFACTURERS OF

STAMPED AND JAPANNED TIN WARE.

Retinned Ware, Pieced Tin Ware, Fire Shovels, Spoons. Toilet Ware, Tin Toys, "Palace" Coal Vases, Coal Hods, Iron Clad and Double Rim Stove Boards, "Champion" Icc Cream Freezers, "Pankers'," "Novelty" & "Elevated Swinging" Transportation Cans,

Perforated Metals, Grocers', Druggists' and Spice Dealers Tin Ware.

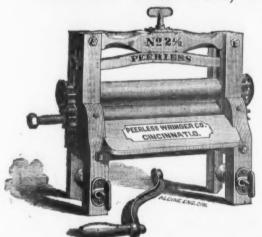
Also, a large line of Miscellaneous House Furnishing Hardware. Please send for illustrated Catalogue

SIDNEY SHEPARD & CO., Buffalo, N. Y.

PEERLESS WRINGER CO

ROBERT SIMPSON, Pres't. Established 1865.

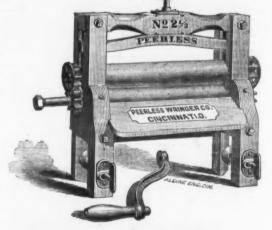
GEO. E. GAULT, Sec'y.



FACTORY.

N. W. Cor. Front and John Sts., Cincinnati, O. NEW YORK OFFICE,

106 Chambers Street.



THE

AND IMPROVED PEERLESS WRINGER,

Which, in addition to the HIGHEST POSSIBLE FINISH, will combine the following

Points of Excellence.

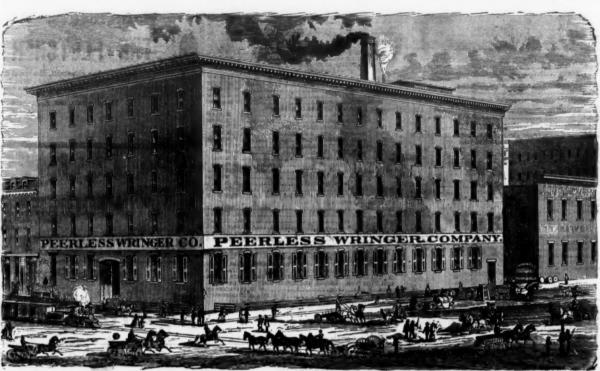
Solid White Rubber Rolls,

Metal Journal Boxes, Maple Frames,

Hickory Cross Bars,

Only Patent Crank Fastening,

Only Wringer with Rubber Fastening Pads.



Points of Excellence.

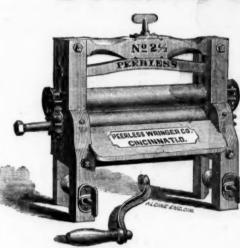
Wrought Iron Thumb Screws,

Hickory Spring Bars, Mold Rubber Springs, Best and most Simple

Tub Attachment,

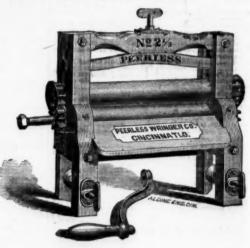
The Apron or Clothes Guide.

Frames Polished and Handsomely Finished.



All Iron Work Perfectly Galvanized and Escutcheons around all Thumb Screws. Nothing can get out of order or be broken. No expense spared to render them Perfect. Superior to any Wringer in the Market.

RRANTED DOUBLE THE CAPACITY OF ANY PURCHASE GEAR WRINGER.



The Peerless Wringers are sold to the trade by the following Johhing Houses.

The rechess		iligers a	ile solu Li	J LITE LIE	ine r	y the lo	mowing Jobbing H	louses:
RUSSELL & ERWIN MFG. CO.,			ROGERS, ENGL			- Dayton.	UDELL, SCHMEIDING & CO	· St. Louis.
66 66			LOOMIS, BARNI			. 66	F. A. WITTE & CO.,	. "
EATON & DANA,	-		WHITTAKER, 1		.,		WICKERSHAM & LOWRIE, -	· Keokuk.
C. FOSTER & CO.,			BUHL, DUCHAR		-	Detroit.	SICKLES, PRESTON & ADAMS,	· Davenport.
EMERY, WATERHOUSE & CO.,	-		PRENTISS & W			. "	J. D. SEEBERGER & CO.,	Des Moines.
W. H. COLE & SONS, .	•		GEO. C. WETHE			. "	WEMOTT, HOWARD & CO., .	Dubuque, Iowa.
BYRNE & FITZSIMMONS, .	-		MORLEY BROS.,			East Saginaw.	STRONG, HACKETT & CHAPIN,	· St. Paul.
TROY STAMPING WORKS,	•		LAYMAN CARE			Indianapolis.	WM. M. WYETH & CO., -	· St. Joseph.
MERRIAM & GREGORY, -	*		HILDEBRAND &			"	SHULTZ & HOSEA	. "
POLLOCK, WEAVER & GOSS,			A. G. AUSTIN &				DUNCAN, WYETH & CO., -	- Kansas City.
PRATT & CO.,			MIDDLETON, B.		WEN,	Louisville.	J. F. RICHARDS & CO., -	. "
FLEMING, AGNEW & CO.,	•		HIBBARD, SPE			Chicago.	J. F. RICHARDS & CO., -	· Leavenworth.
JOSEPH WOODWELL & CO.,		66	FELIX, MARST	ON & BLAIR,		66	BLISH, MISE & SILLIMAN,	- Atchison.
		. "	BRINTNALL, LA	AMB & CO.,	•		IRWIN & ELLIS,	Omaha.
LOCKWOOD, VAN DORN & MIL	ER,	Cleveland.	CLARK, QUIEN	& MORSE,		Peoria.	D. & C. L. BAUM,	 Lincoln, Neb.
KILBOURNE, JONES & CO.,			SIMMONS HARD	WARE CO.,		St. Louis.	KNAPP, BURRELL & CO., -	Portland, Oreg.
PAPENHEIMER & LUDLOW HD	W. CO.,	, Cincinnati.						

GIVE US A TRIAL ORDER

H. D. SMITH & CO.,

MANUFACTURERS,

Plantsville, Conn.

AXLE AND SPRING BAR CLIPS. OFFSETS AND STAY ENDS. SADDLE CLIPS. PLAIN PATTERN. (5-8 in. wide.) COACH AXLE CLIP. POINT OCTACON OFFSET. AXLE SADDLE. DOUBLE POINT PATTERN. (5-8 in, wide,) PLAIN PATTERN. (7-8 in, wide.) PLAIN OCTACON OFFSET. OCTACON. PLAIN PATTERN. (Edge View.) PLAIN PATTERN. (1 in. wide.) OVAL PATTERN OFFSET. SOLID DOUBLE. "ANVIL" PATTERN. (7-8 in. wide.) HEAVY AXLE CLIP. (3-8 in. Shank.) ROUND PATTERN OFFSET. BREWSTER PATENT. EXTRA HEAVY AXLE CLIP. (7-16 in. Shank.) POINT OCTACON FRONT STAY END. SKELETON. SMITH'S SPRING BAR. PLAIN OCTACON FRONT STAY END. PLAIN SPRING BAR. ROUND FRONT STAY END. AMERICAN COACH CLIP. ROUND BACK STAY ENDS. SPRING CLIP. FRENCH COACH CLIP. OVAL FRONT STAY END.

See Illustrations on the two pages preceding this. For description of the above and other popular Forged Carriage Irons, send for 1877 Illustrated Price List.

Steel.

IRON AND STEEL.

Pr. HOMOGENEOUS DEC.' CAST STEEL, GUN BAR-RELS. MOULDS AND ORDNANCE.

Sole Agents for COCKER BROTHERS, Limited, accessors to SAML. COCKER & SON, (ESTABLISHED 1752.)

SHEFFIELD, ENGLAND. Sole manufacturers of

EXTRA' Cast Steel, CAST STEEL WIRE for all purposes.

Cocker's "Meteor" Wire Plates.

Railroad Supplies and General Merchants. Office and Warehouse, 46 Cliff Street, New York.

F. W. MOSS.

WADSLEY BRIDGE WORKS, SHEFFIELD, ENGLAND.

STEEL AND FILES. Principal Depot, 80 John Street, New York.

MOSS & GAMBLE SUPERIOR C. S. "FULL WEIGHT" FILES, Cast Steel Hammers and Sledges. Also, "M. & G." Anvils and Vises. WARRANTED CAST STEEL, especially adapted for DIES and TURN-PUNCRES and all kinds of MACHINISTS' TOOLS, DRILLS, COLD CHIEKLE, Celebrated Improved Mild Centre Cast Steel, for Taps, Reamers, and Milling Teols, Swarranted not to crack in hardening Taps of any size.

Ewede Spring Steel, especially adapted to Locomotive and Railway Car Springs. English Spring and Plow Plate Steel.

Sheet Cast Steel Shear, German, Round Machinery, Hammer, Fork and Shovel Steel GENERAL MERCHANT.

ALBANY & RENSSELAER IRON & STEEL CO., Troy, N. Y.,

Office in New York City, 56 BROADWAY.

Bessemer Railway Steel, MERCHANT BARS, TIRE AND SHAFTING,

Railroad Iron, Pig Iron, Merchant and Ship Iron, AGENCIES IN BOSTON AND PHILADELPHIA.

FRANCIS HOBSON & SON, 97 John Street, NEW YORK,

Sole Manufact'rs of "CHOICE" Extra Cast Steel.

Manufacturers of all Descriptions of Steel. Manufacturers of Every Kind of Steel Wire.

Don Works, Sheffield, England. CHAS. HUGILL, Agent.

& C. WARDLOW.

Sheffield, England,

Manufacturers of the Celebrated

Cast and Double Shear

In Bars, Sheets and Coils, for fine Pen and Pocket Cutlery, Table Knives, Turning Tools, Dies, Files Clock and other Springs, and Tools of every variety. Warehouse, 95 John Street, New York. WILLIAM BROWN, Representative.

JONAS, MEYER & COLVER,

CONTINENTAL STEEL WORKS, SHEFFIELD, ENGLAND.

EXTRA BEST WARRANTED CAST STEEL

For all Descriptions of Fine Tools.

J., M. & C. Manufacture Tool Steel exclusively. M. DIAMOND & CO., Principal Agents for the United States and Canada HARTFORD, CONN. Office a 1d Warehouse, i.v. 6 Ford Street,



BUCK BROS, Millbury, Mass.

The most complete assortment in the U. S. o Shank, Socket Firmer and Socket Framing Chisels,

PLANE IRONS.

Gouges of all lengths and circles, beveled inside or outside. Nail sets, Scratch and Belt Awis, Chise Handles of all kinds. Orders filled promptly; generally same day as received.

Steel.

R. H. WOLFF & CO., SANDERSON BROTHERS & COMP'Y'S BEST REFINED CAST STEEL.

Warranted most superior for TOOLS AND GRANITE ROCK DRILLS.

A full assortment of this universally approved OLD BRAND and other Steels for sale by

FRITH & TILESTON, Agents,

No. 16 Cliff Street, NEW YORK.

LABELLE STEEL WORKS.

SMITH, SUT CO.,

Also Springs, Axles, Rake Teeth, &c. OFFICE & WORKS, Ridge, Lighthill & Belmont Sts., & Ohio River, Allegheny.

Post Office Address, Pittsburgh, Pa.

Represented at Boston by WETHERELL BROS., 21 Oliver St.; at Milwaukee by JOHN PRITZLAFF, 43 to 49 West Water St.; at Chicago by S. D. Embark, 50 to 85 Michigan Ave.

MIDVALE STEEL WORKS

Works and Office, NICETOWN, PHILADELPHIA, PA.

Steel Locomotive and Car Wheel Tires. Steel Axles of every description. STEEL FORGINGS UP TO 8000 lbs. IN WEIGHT.

Solid Steel Castings, Hammer Dies, Frogs, Crossings, etc. BEST TOOL, MACHINERY AND SPRING STEELS.

CHAS. A. BRINLEY, Supt. MARRIOTT C. SMYTH, Sec. & Treas WM. SELLERS, Pres.

MILLER, METCALF & PARKIN Crescent Steel Works. PITTSBURGH, PA.,



EQUAL TO ANY IN THE MARKET.

Office, 81 Wood Street, - PITTSBURGH, PA

Established 1810.

SHEFFIELD, ENGLAND.

Manufacturers of the "Celebrated

"DOG BRAND" FILES.

For Drills, Cold Chisels, Tools, Taps, Dies, &c. COLD ROLLED STEEL for Clock Springs, Corsets, &c. SHEET CAST STEEL for Springs, Saws, Welding and Stamping Cold, &c. GERMAN, MACHINERY, ENGLISH AND SWEDES SPRING STEEL,

And all other descriptions for machinists and agricultural purposes,

Warehouse. 30 Gold Street, New York.

Near John Street.

HENRY MOORE, Agent.



Metal Trades' The Tronmonger &

A WEEKLY TRADE JOURNAL.

PUBLISHED EVERY SATURDAY, AT 44a CANNON STREET, LONDON, E. C., And issued in 53 Numbers, one in the form of a handsome Diary and Text Book,

adapted to the Ironmongery and Metal Trades

adapted to the Ironmongery and Metal Trades.

"The Ironmonger" was established in 1859, and is the oldest and chief representative organ of the Iron, Hardware and Metal Trades. This journal stands pre-eminent amongst trade publications, and possesses all the advantages of the Commercial Newspaper and a high-class Literary Magazine. The principal characteristics of the "The Ironmonger" are the accuracy of its Market Reports and Prices Current; the intrinsic value of its Home, Foreign and Colonial Correspondence; the impartiality of its criticism upon the leading novelties of the day; its careful selection of Agricultural, Legal and Magisterial News appertaining to the Metal Trades; the completeness of its list of Patents and General Statistics, and its multiplicity of classified Advertisements. The main object of this publication is to furnish a faithful record of all things of specific value to those interested in the manufacture, purchase, consignment, shipment or sale of Hardware, Arms and Ammunition, Oils, Seeds, Implements, Machinery and Metals.

The Foreign Supplement is published every fourth Saturday, in English, French, German, Spanish and Italian, giving a selection of suitable news and advertisements. Full terms on application to the office in London.

GREAT BRITAIN, IRELAND, Australasia, Belgium, Brazil, Canada, Cape of Good Hope, China, France, Germany, Greece, India, Italy, River Plate, Bussia, Spain, the West Indies, and United States of America

are the principal places where The Ironmonger is circulated, amo Ironmongers, Merchant Shippers, Foreign and Colonial Store Dealers, Factors Mechanical and Mining Engineers, and the Users of Steam

Power and Engineering Plant.

This class of persons constitutes the majority of the subscribers to The Ironmonger, and the value of this publication as an influential advertising medium cannot, therefore, be overrated. Subscription, 20s. per year, payable in advance; commencing from any date.

Post free to every country in the world. American subscribers can remit $\$_5$ as a year's subscription, either direct to the London Office, or through the publisher of *The Iron Age*, $\$_7$ Reade Street, New York.

Steel.

MUSHET'S Special Steel

LATHES, PLANERS, &c.

Sole Makers SAMUEL OSBORN & CO.,

Sheffield, England. Represented by

RANDALL & JONES, 10 Oliver St., Boston. BRANCH, CROOKES & CO., Vine Street, St. Louis, Mo.

STEEL RESTORATIVE WORKS

119 Greenwich Ave., near W. 13th St., NEW YORK,

Gunpowder.

GUNPOWDER

DUPONT'S

Sporting, Shipping, and Mining POWDER.

DUPONT'S GUNPOWDER MILLS.

ESTABLISHED IN 1801, Have maintained their great reputation for 75 years. Manufacture the

Celebrated Eagle Ducking, Eagle Rifle, & Diamod Grain Powder.

THE MOST POPULAR POWDER IN USE. lies, SPORTING, MINING, SHIPPING, AND BLAST-ING POWDER.

of all kinds and descriptions. For sale in all parts of the country. Represent

F. L. KNEELAND 70 Wall Street, NEW YORK.

GUN POWDER. Laflin & Rand Powder Co.

No. 36 Murray Street, New York, Manufacture and sell the following celebrated b f Sporting Powder known everywhere as ORANGE LIGHTNING,

ORANGE DUCKING. ORANGE RIFLE

more popular than any Powder now in use.

Blasting Powder and Electrical Blasting
Apparatus.

Military Powder on hand and made to order.

AFETY FUSE, FRICTIONAL & PLATINUM FUSES. Pamphiets showing sizes of grain sent free.

Torrey's Door Springs Ice Cream Freezers.



P. R. DUNNE, Manufacturer, No. 189 Fulton Street, New York. Send for prices.



Manufacturers of Hand and Bench Screws, Cab-inet and Piano-Forte Makers' Clamps, Chisel Han-dles, Carpenters' Mallets, Croquet Games, Touraée, Boys' Tool Chests, Architectural Building Blocks, Toys, &c. Pawtucket, R. I.



HO

Gro

Store

Sold by

Circulars and price lists furnished. Address THE LAFAYETTE WAGON SPRING CO., Sole Manufacturers, Lafayette, Ind Steel.

LIMITED.

STEEL RAILS BLOOMS & INGOTS

General Office and Works at Bessemer Station (Penn. R. R.), Allegheny County, Pa.

New York Office, 57 Broadway.

The members of the Edgar Thomson Steel Company, Limited, have had large experience in manufacturing and in railway management; their works are the most complete in the world, with all the late improvements, and are located in the best Bessemer metal district in the United States, and their managing officers are experienced in the manufacture of Bessemer Steel.

The Company warrants its rails equal in quality to any manufactured in the United States.
Rails of any weight or section furnished on short notice. Orders for trial lots solicited.

Branch Office and P. O. Address, D. McCANDLESS,

Chairman.



WM. P. SHINN,

General Manager.

Pyrolusite Manganese

MINERS, DEALERS AND EXPORTERS OF HIGH TEST,

Crystallized Black and Cray Oxides of MANGANESE.

Ground, granulated and especially prepared to suit all branches of the home trade. Warranted to contain from 70 to 90 per cent. peroxide of manganese, and to give satisfaction with regard to price and quality.

ALSO, MANUFACTURERS OF SUPERFINE FLOATED

Standard Barytes. Office, 214 Pearl Street, New York.

JOHN WILSON'S CELEBRATED



GRANTED A.D. 1766, BY THE

BUTCHERS' KNIVES, BUTCHERS' STEELS, SHOE KNIVES.

THE TRADE MARK, IN ADDITION TO THE NAME. 18 STAMPED UPON EVERY ARTICLE MANUFACTURED BY

JOHN WILSON.

BUYERS ARE SPECIALLY CAUTIONED AGAINST

IMITATIONS OF THE MARK, AND THE
SUBSTITUTION OF COUNTERFEITS

BEARING THE NAME, "WILSON," ONLY.

COMPORATION OF CUTLERS OF SHEFFIELD, AND PROTECTED BY ACT OF PARLIAMENT. Works: -SYCAMORE STREET, SHEFFI ELD. ESTABLISHED in the Year 1750.

OFFICES AND WAREHOUSES : NEW YORK, 101 and 103 Duane and 91 and 93 Thomas Streets.

REMSCHEID and SOLINGEN (Prussia.) H. Boker & Co.

SHEFFIELD (England), No. 3 Arundal Lane, Represented by Mr. ARTHUR LEE.

LIEGE (Belgium), Represented by Mr. Louis Muller.

Manufacturers and Importers of Cutlery, Guns, Hardware and Railroad Material.

Proprietors of TRENTON VISE AND TOOL WORKS, Trenton, N. J.—Vises, Picka Mattocks, Grub Hoes, Sledges, Hammers, Bridge Work, Turn Tables, etc.

Proprietors of the MANHATTAN CUTLERY CO., "O. K." Razors.

LAMSON & GOODNOW MFG. CO., Shelburne Falls, Mass.—Table Cutlery and Butcher

W. & S. Butcher's Files, Edge Tools and Razors, the largest stock in the United States.

Geo. Wostenholm & Son's Knives, Scissors and Razors, the largest stock in the U S.

John Wilson's Butcher and Shoe Knives.

Gardner's Pocket Knives. Trenton Auvils.

We always have on hand a full assortment of German and English Hardware, Cutlery, Guns, Gun Material, Chains, Heavy Goods.

The 1878 Pennsylvania Lawn Mower.

LIGHT DRAFT AND EASILY ADJUSTED:



ind.

This machine presents all the advantages of a light and durable LAWN MOWER, and we believe has good qualities which cannot fail to be appreciated. It is the lightest machine in use, and all that is necessary to satisfy our customers of its superiority is to place it in competion with any other machine in the town in which they may reside. Every machine warranted to work as

		PRICE LIST.	
7	Width of Cutter.	Description.	Price
	12 inch.	8 in. driving wheel, wt. 33½ lbs. Can be used by a ladeach,	\$x8.c
	16 4	8 in driving wheel, wt. 343/4 1bs. Can be used by a lady . " 8 in. driving wheel, wt. 363/4	20.0
W.	10	lbs. One man size	32.0

GENERAL AGENTS:

LLOYD, SUPPLEE & WALTON, 625 Market St., Philadelphia. HORACE DURRIE & CO., 97 Chambers & 81 Reade Sts., N. Y.

BAEDER, ADAMSON & CO. Manufacturers of SAND & EMERY PAPER & EMERY CLOTH.

Ground Emery, Corundum & Filit, Glue & Curled Hair, Hair Felt, & Felting for Covering Bollers, Pipes, &c., Cow Hide Whips.

Stores:

| PHILADELPHIA, 730 Market St., | BOSTON, 143 Milk St., |
| CHICAGO, 183 Lake St., |

SPRING HINGES

Patent Anti-Friction Springs,

SCREEN DOORS.

PRICE LIST.-Per Dozen Pairs.

SINGLE JOINT HINGES. (To Swing one way.)

	WITHOUT A	CORN TIPS.	WITH ACORN TIPS.			
SIZE.	BRASS.	NICKEL PLATED.	BRASS.	NICKEL PLATED.		
2¾ inch	\$ 3 00 4 50 7 50 18 00	\$ 4 50 6 50 10 00 23 00	\$ 5 00 6 75 10 00 21 00	\$ 6 50 8 75 12 50 26 00		

The 41/2 x 41/2 is Extra Heavy.

DOUBLE JOINT HINGES.

(To Swing both ways.) To be used on Door 1 inch thick, or less.

NICKEL NICKEL \$ 9 00 11 50 \$11 50 13 50 21 50 \$14 25 17 00 26 00 23/8 inch..... \$ 6 60 16 50 21 00

The large cut represents full size of our 5 inch Double Joint Acorn Tip Hinge for mortising. The small cut represents the plain Single Joint

Hinges, but not full size. Liberal Discount to the Trade.

Nos. 419 & 421 Broome Street. SCOVILL MFG. CO., NEW YORK.

The American Machine Co.



And Other

HARDWARE SPECIALTIES.

Office and Factory,

PHILADELPHIA, PA. 1916 to 1924 North Fourth Street. -

Automatic Revolving Scraper.





Iron or Steel Bottom. Nothing equal to our Revolving Scraper for removing earth.

Also, Contractors' Plows and a full line of Barrows. Send for circular.

REVOLVING SCRAPER CO., Columbus, Ohio.

STEWART & MATTSON,

Manufacturers of LOCKS, DOOR KNOBS AND FIRE-PROOF SAFES

Remington Agricultural Co., Bushnell & Co.'s Wrought Staples, Jesse J.
Collom's Black Augers, A. F. Whiting's Scal Car Locks.

STORE, 513 Commerce St. FACTORY, Broad & Buttonwood Sts., Philadelphia, and consignments solicited,

Hmery, Grindstones, &c.

Walter R. Wood, GRINDSTONES.

Berea, O., Nova Scotia, & other brands. 283 and 285 Front Street, New York.

WORTHINGTON & SONS.

North Amherst, Ohio. Manufacturers of

Lake Huron Amherst and Berea

GRINDSTONES

Manufacturers of Black River, O. Wickersley, Eng

Lake Huron, Mich. Novia Scotia. CRINDSTONES,



DUNBAR BROS.,

Clock Springs and Small Springs BRISTOL, CONN.

J. T. WILSON, Supts.

Wilson & Hughes Stone Co., AMHERST BUILDING STONE,

Steam Oil Stone Works. F. E. DISHMAN, Successor to Wn. Galbraith & Co. Manufacturer of and Depler in the Best Washita, Arkansas, Hindostan and Sand

STONES,

Of all description.

107th Street and Harlem River, Illustrated Price List. NEW YORK.

Bridgewater Iron Co.'s Horse Nails."

LIST PRICE, Pointed and Polished. No. 5 6 7 8 9 10 26c. 23c. 21c. 20c. 19c. 18c. per lb. Full Assortment of above always on hand

AND FOR SALE BY THE PARKER MILLS.

N. STETSON JR., Agent, 73 Pearl St., New York.

Coal.

A. PARDEE & CO. 303 Walnut St.,

PHILADELPHIA.

No. III Broadway, New York. MINERS AND SHIPPERS OF

Lehigh Coals.

The following superior and well known Lehigh Coals are mined by ourselves and drms onnected with us, viz.

A. Pardee & Co.

CRANBERRY, SUGAR LOAF.

Pardee, Bro. & Co LATTIMER. Calvin Pardee & Co. HOLLYWOOD. Pardee, Sons & Co. Mt. PLEASANT.

THE HOBOKEN COAL CO.,

SCRANTON, LEHIGH and other COALS. Retail Yard on D. L. & W. Railrosd, cor. Grove and 19th 81s., Jersey City. Coal delivered dire 't from Shutes to Carts and Wagons. Families and macufactories are pited with the oct qualities of Coal at the lowest rate. Of Froze At Yard cor. Grove and 19th 81s. cor. Bay St. and Newirk Ave., Jersey City: Room 35, 111 Proad way, N. Y. General Office, Bank Buildings, cor. Newark and Hudson Sts., Hoboken. P. O. Box 24, Hoboken.

WHEELING HINGE CO.,

Wheeling, West Va.,

Wrought Butts, Strap & T Hinges, Wrought Hooks, Hasps & Staples, Wrought Repair Links & Washers,

GRAHAM & HAINES, Sole Agents, 113 Chambers & 95 Reade Sts., N. Y.

ENTERPRISE Mfg. CO. of PA.

Patented Hardware Manufacturers and Iron Founders, THIRD and DAUPHIN Sts., PHILADELPHIA



SPECIALTIES.

nterprise Patent Cold Handle Double Pointe SMOOTHING AND POLISHING IRONS. CHAMPION TOBACCO CUTTERS. PATENT MEASURING FAUCETS, SELF-WEIGHING CHEESE KNIVES, Coffee Roasters, Bung-Hole Borers,

THE ENTERPRISE (not the Russian) SAD IRON (Clad) Smoothing the Coast. SPECIALTIES.

COFFEE, SPICE AND DRUG MILLS SAUSAGE STUFFERS, FRUIT, LARD and JELLY PRESSES, CHAMPION DRIED BEEF SHAVERS.

CLARK & CO.,



TENNIS & WILSON, Agents,

BUILDERS IRDWARE

426 and 428 Niagara Street, BUFFALO, N. Y.

81 Beekman Street, New York,

FELTER'S PATENT LOCKS,

The American Lock Mfg.

Are the most SECURE and DURABLE ever made.

SECURE
Because they have 40 Brass Tumblers, independent in their action, either one of which will prevent the ock from being opened unless brought to proper position by the Key.

DURABLE Because we use no Springs to break or get out of place.



STERLING METAL KEYS

That will not corrode or wear, and are



Upright Rim Dead Locks,

Horizontal Rim Night Latches,

Horizontal Rim Tubular Night Latches Mortise Night Latches, Plain Fronts,

Mortise Night Latches, Ornamental Bronze

Fronts and Knobs Brass Chest, Box, Cupboard and Drawer Locks.

Solid Bronze Padlocks.

Illustrated Catalogue and Price List sent on application. All orders should be addressed



UNION NUT CO., General Agents, 99 Chambers St., N. Y.

Mica and Porcelain Materials. THE CHESTER MICA AND PORCELAIN CO.

Mica of the Best Quality, Feldspar of highest Standard and Purity, Quartz, the Finest, Whitest, Best.

Kaolin, Asbestos and Baryta.

Best Terms, Wholesale and Retail.

Address, CHESTER MICA AND PORCELAIN CO., 87 Liberty St., New York,

A.C.COES



Our goods have been very much improved recently, by making the Bar WIDE, as shown in the cut, which makes a 12 in. Wrench as strong as a 15 in. made in the ordinary way, and by using

A. C. COES'

NEW PATENT

FERRULE

Which cannot be forced back into the handle.

EFF Our goods are manufactured under Patents dated February 7, 1860, (re-issued June 29, 1871), May 2, 1871, and Dec. 26, 1871, and any violation of either will be vigorously prosecut id.

new Patent Ferrule, with its supporting Nut (shown in section in the above cut), which makes the strongest Ferrule fastening known.

A. G. COES & CO.

Our Agents, GRAHAM & HAINES, 113 Chambers St. lew York, carry a full line of our goods, and will be deased to serve you at factory prices.



Calkers', Carpenters', Stone Cutters' Tin, Copper and Boiler Makers'

MALLETS, Hawsing Beetles, Hawsing and Calking Irons also all kinds of Handles, Sledge, Chisel and Hamme Handles. Also

COTTON AND BALE HOOKS, tented Feb. 13, 1377; a new combination of Hooks 456 E. Houston St., New York City.

Wilson Bohannan,

BRASS Pad Locks,



Railroad Switches, Freight Cars, and the Hardware Trade. All sizes, with Brass and Steel Keys, with & without chains. Passenger Car Locks, Bronzed, Nickel-Plated and Japanned.

EPatent Tubular Night Latches.

BROOKLYN, N. Y.



Manufacturers of Patent Scandinavian or Jail Locks, Brass Pad Locks for Railroads and Switches, Also Patent Stationary R. R. Car Door Locks. Pat-ent Plano and Sewing Machine Locks. 141 to 145 Railroad Avenue, Newank, N. J. Illustrated Catalogue sont to the trade on appli-

Co.,

Manufacturers of

Geng Bell &c.



COBB & DREW,

Plymouth, Mass. s of Copper, Brass, and Iron Rivets: Com-des Iron, Leathered, Carpet, Lace and Ghap hing, Hungarian, Trunk Clout and Char Elvets made to Order.

NEW YORK AGENCY George C. Grundy. HARDWARE.

165 Greenwich Street.

Agents for Ithe IPhiladelphia Star Carriage and Tire Bolts.

SAM'L G. B. COOK & CO.,

American and Foreign

Hardware and Cutlery Manufacturers' Agents,

Nos. 5 & 7 German St., BALTIMORE.

American Screw Co., Screws, Rivets, Kimball Shovel Co., Solid Cast Steel

American Tea Tray Co.

American Machine Co., Crown Flu ters, Wringers, etc.

Branford Lock Works. Beardsley Scythe Co. Bailey Tool Co., Defiance Iron Planes.

T. H. Bullock, Bellows. Carr, Crawley & Devlin, Building Cabinet and Saddlery Hardware.

Clark & Co., Patent Blind and Gate Cowles Hardware Co., House Furnish-

ing and other Hardwar Clark Bros. & Co., Carriage, Tire and other Bolts.
Connecticut Cutlery Co., Pocket Cut-

H. Chapin's Son, Rules, Levels, etc. John Chatillon & Sons, Balances.

L. Coes & Co., Patent Screw Wrenches. Eclipse Fan Blower. A. Field & Sons, Tacks, Nails, etc. Forsythe Scale Works, Scales and

Hubbard, Bakewell & Co., Lippen-

cott Axes and Shovels.

Locks.

Locks.

Locks.

Locks.

B. Wilson, Cow Bells.

Hoes and Rakes, Snaths, etc.

Locks.

D. B. Wilson, Cow Bells.

making our assortment of

Represent and carry in stock a full line of the following manufacturers' goods, which we offer the Trade at manufacturers' prices and terms:

Klein, Logan & Co., Picks, Mattocks, Grub Hoes, Fire Shovels, etc. Henry W. Kip, C. S. Hammers.

Lancaster Bolt Co., Eagle Carriage and Tire Bolts. Lamson & Goodnow Mfg. Co., Table

Cutlery, Butcher Knives, Meriden Britannia Co., Plated Ware

W. T. & J. Mersereau, Stair Rods, etc. Wm. McNeice, Saws. Nicholson File Co.,

Saranac and International Horse Nails.

Northwestern Horse Nail Co. Peck Bros. & Co., Brass Cocks.

A. G. Patton, Enameled and Tinned Hollow Ware.

Rogers Bros., "A1 1847" Plated Spoons,

Roy & Co., Strap and T and Hook and Eye Hinges, Wrought Butts, Nuts, Wash-Scandinavian Pad Locks.

James R. Torrey's Razors and Straps. U. S. Lock Co., Shepherdston's Patent

Builders', Cabinet, Agricultural and House Furnishing Hardware & Cutlery.

As complete as can be found in any house. Also full stock of

Wostenholm's, Rodgers', Field & Co., Continental and German Cutlery, W. & S. Butcher's Razors, Edge Tools and Files.
Full line of

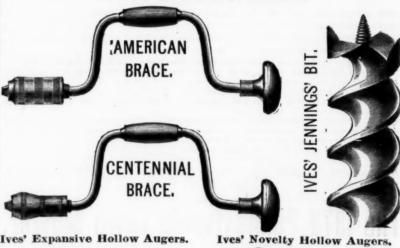
REVOLVERS AND CARTRIDGES. And a general assortment of

SHELF AND HEAVY HARDWARE. Orders filled promptly from stock.

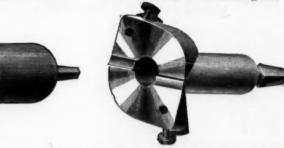
Consignments of desirable goods solicited.

WILLIAM A. IVES &

New Haven, Conn.







WM. H. HASKELL & CO. Pawtucket, R. I.,

COACH SCREWS (With Gimlet Points),

Machine and Plow Bolts, FORCED SET SCREWS.

TAP BOLTS,



Phing

PHILADELPHIA.	ChatfieldNo. 1, \$3:50; 2, \$4:00; 8, \$6:00 \$\vec{v}\$ doz. net Gem Coll No. 1, Large Jap'd \$\vec{v}\$ doz \$3:50)
(Corrected weekly by Lloyd, Supplee & Walton). Terms, 30 days. For 60 or 90 days, interest added at 10 per cent, per annum.	" No. 2, Medium Jap'd " 2:50 dis 2:00 "
Apvile. Peter Wright's, \(\pi \) = \(Chatfield No. 1, \$5.50; 2, \$4.00; 3, \$6.00 ₱ doz. net Gem Coil No. 1, Large Jap'd \$\pi\$ doz \$3.50) " " No. 2, Medlum Jap'd " 2.50 dis " No. 3, Small " 2.00) Stocks and Dies das 166.5 € Stocks and Dies das 166.5 € Dixon \$\pi\$ gross, \$4.50, dis 5 \$\pi\$ Dixon "\$4.00 @ 4.25 net Tacks \$\pi\$ and \$\pi\$
Wisinson's, \$\ \bar{\pi}\$ \bar{\pi}\$, gold9 cents per lb—dis 20% Apple Parers.—	Dixon
Reading No. 72. per doz \$ 3 50 net	Full "
Peach Parers	Copper Weight W b 55c., net Brads, Half Weight dis 50 %
Axes. Mann's Red Warrior	Bhoe Nails— 4-8 and larger, 9c; 314-8, 934c W B, div 20&10 % Trunk, Cloud and Finishing Nails— 3
Red Chiefcain, beveiled 9 00 3 10 t0 net Crown Prince 9 50 3 10 50 net	25, 26, 17, 15, 18, 11c # m, dis 20&10g Double Pointed Tacks
Bates' Nut Augers	Genuine Oneida—Newhouse
Benjamin Pierce Auger Bitta	Girard (Coe's Pattern)dis 50&10 %, case 50, 10&5 %
Lots of 10 to 28 dozen special price. **Mann's Red Warrior	Coes' Genuine
Balances	Taft's "Wrot dis 75 @ 75 & 10 % Phila. Tool Co., Duplex dis 25 % Wire.
Betis.— Bevin Bros. Mrg. Co. Light Hand Bellsdis 70 @ 75 % Swiss Pattern Hand Bells	Wire -
Conneil's Door Bets	Coppered 0 to 18. dis 5236 @ 50 \$ Tinned Broom Wire. dis 45 @ 47 % \$ Galvanized, No. 7 to 18 Market list, aus 30 @ 35 \$
Chambers No 1, 107 % bolts, each 900 dts. 25 %	Wringers.—Novelty No. 10
Upright, with Augers List \$9 00 dis 40&10 % 5 50 dis 40&10 % 5 50 dis 40&10 % 10 dis 40&10 % 11 00 dis 40&10 % 11 00 dis 40&10 %	
Light and Coulino Coul	PITTSBURGH.
Stanley, Wrought Shutter. dis 50 % Braces.—Barber's dis 40.65 % Bracks. dis 50 @ 50.210 \$	# Hat Bar, 134 to 4x34 to 1 in1.80c 134 and 134x34 to 34 in90c 434 to 6x34 to 1 in
Sponard	1% to 6x1% to 1% in2.00 %, % and 7% % to % in.2.200 Rounds and Squares. % to 9-16 in200
Cast Loose Joint, Narrow dis 704:10 8 Broad 706:10 8 10 10 10 10 10 10 10 10 10 10 10 10 10 1	Rounds and Squares. \$6 to 9-16 ln 2c t t 0.7% ln 1.8cc \$6 to 7-16 ln 2.2cc 2 t 0.2% ln 2c \$6 ln 2.3cc 2% to 3% ln 2.3cc \$5 ln 2.3cc 2% to 3% ln 2.3cc \$5 ln 2.3cc 2% to 3% ln 2.3cc \$6 ln 2.3cc 2.
** Acorn ** Jap'd. dis 6736-20 (Mayer's Loose Joint dis 704-10 4	4 to 4 in 1.9cc 3-16 in 48cc Horse Shoe Bar—all sizes 2.8cc
Wrought Loose Hinges and Back Flaps dis 35&10 & Rarrow, Fast	Horse Shoe Bar—all sizes
Biind Buttes. dis 60 @ 60&10 \$ Parker. dis 60 @ 60&10 \$	Light Bands. 1 to 184% to 3-16 in2.50c 2 to 6x16 to 3-16 in2.50c 3 to 6x16 to 3-16 in2.50c 3 and 5x24 to 3-16 in2.50c 3 and 5x24 to 3-16 in3.50c 3 and 5x24 to 3-16 in3.50c 3 and 5x24 to 3-16 in3.50c
Clark Clar	Same sizes X No. 11 and No. 12 2-100, extra. Hoop Iron. 6 & 9-16, Nos. 17 to 20. 4-800
Chains.—German haiter and Coli. dis 30&5 % gold Galvanized Pump. B 10%c net Best Proof Coli Chain—(English).	4&21-16, NOS. 13 to 16. 40 76 21-16, NOS. 17 to 20.4-300 76 213-16, NOS. 17 to 20.3-800 76 213-16, NOS. 17 to 20.3-800 76 213-16, NOS. 10 to 10.3-800 76 213-16 NOS. 17 to 20.3-800 76 213
Narrow, Fast dis 40±10 k	Hoop Iron. \$\frac{4}{8} \pi \phi_1 \text{0.16}, \text{ Nos. 17 to 204.80c} \\ \$\frac{4}{8} \pi \phi_1 \text{0.16}, \text{ Nos. 17 to 204.80c} \\ \$\frac{4}{8} \pi \phi_1 \text{0.16}, \text{ Nos. 13 to 1640c} \\ \$\frac{4}{8} \pi \phi_1 \text{0.16}, \text{ Nos. 17 to 2035cc} \\ \$\frac{4}{8} \pi \phi_1 \text{0.16}, \text{ Nos. 17 to 2035cc} \\ \$\frac{4}{8} \pi \phi_1 \text{0.16}, \text{ Nos. 17 to 2035cc} \\ \$\frac{4}{8} \pi \phi_1 \text{0.16}, \text{ Nos. 17 to 2035cc} \\ \$\frac{4}{8} \pi \phi_1 \text{0.16}, \text{ Nos. 17 to 153 cc} \\ \$\frac{4}{8} \phi_1 \text{0.16}, \text{ Nos. 17 to 153 cc} \\ \$\frac{4}{8} \phi_1 \text{0.16}, \text{ Nos. 15 to 153 cc} \\ \$\frac{4}{8} \phi_1 \text{0.16}, \text{0.16}, \text{0.16} \\ \$\frac{4}{8} \phi_1 \text{0.16}, \text{0.16}, \text{0.16} \\ \$\frac{4}{8} \phi_1 \text{0.16}, \text{0.16}, \text{0.17} \\ \$\frac{4}{8} \phi_1 \text{0.16}, \text{0.16}, \text{0.17} \\ \$\frac{4}{8} \phi_1 \text{0.17}, \text{0.16}, \text{0.17} \\ \$\frac{4}{8} \phi_1 \text{0.17} \\ \$\frac{4} \phi_1 \tex
Bocket Firmer	1-toc * B extra for each gauge lighter, Oval Iron, 2 to 14 in
Plate Mills Box and Side dis 25 g Caffee Mills Box and Side dis 25 g Enterprise dis 20 g	Octobrook Compared
Cuttery.— which the Landers. Frany & Clark, J. Russell & Co., Lamson & Landers. Frany & Clark, J. Russell & Co., Lamson & Goodnow Mfg. Co. and Meriden Cutlery Co., Manu	% to % in
Admerable Handiedis 20 g	Sheet Iron. Chare'l No. 22 to 24330c 4.60c No. 15 to 17360c 4.00c No. 25 & 26350c 4.60c No. 15 to 17360c 4.00c No. 27370c 5.00c No. 27370c 5.00c No. 28410c No. 28
Adjustate Pans dis 50&10 @ 60 \$ Tinned dis 50&10 @ 60 \$ Tinned dos . \$4751 4 00 4 50 5 00 5 50 6 50 7 50 9 60 10 00	less than 2-10c. extra.
Adjustation of the property Parameter (1974) Adjustation of the property Parameter (1974) Adjustation of the property Parameter (1974) Adjustation of the property of the prop	Wood's Patent Planished Sheet. 1st quality (A)10½e 2d quality (B)9½e Plate Iron—3-16 to ¼ in. thick
No 0 1 5 5 6 7 8	Galvanteed Iron-Juniata. 2.000 100
Disston. 41 50 2 gold Butener. 44 50 2 gold Spencer. 44 50 4 75 2 gold	Nos. 25 and 26
Finting Macanias (acch \$2 50 net imperial 4 (in. roll seach \$2 50 net seach \$2	Roofing Iron, Corrugated or Crimped.
## - 5% in. roll. ## 40 00 Crown - 1% in. roll. Each ## 40 00 dia 45 \$	No. 21 to 24.75 & Sc. " Nos. 21 to 24
No.	Solid Wrought Iron Beams, 3 to 10\(\frac{1}{2}\) in \(\text{in} \) \(\text{B} \) 3 c
Hammond & Son'sdis 25 @ 30 %	Beams and Channels. Beams and Channels. 12 in. by 25 ft. 1 3 dec. 1
Hatchets Yerkes & Plumb. dis 25 @ 30 € Hammond dis 25 € Hutt. dis 25 €	sin with to sin water
Hunt	Equal Sided, 1x1 to 14x1% in
Hunt Bingess Strap and T Nos. 5 6 7 8 9 10 Ausable Pi'd and Polled & Pi'd and Polled & Pi'd and Biued and Pointed & 23 21 25 24 25 Globe Net list 26 23 21 20 19 18 13 Glinton 22 30 19 18 13	Equal Sided, 1x1 to 15x134 in. \$\\$ D 2.7c 2x2 to 4x4. \$\\$ 2.5c Unequal Sided, 2x134 to 5x4. \$\\$ 2.5c Unequal Sided, 2x134 to 5x4. \$\\$ 2.6c Square Root Angles, 2x2 to 35x334 \$\\$ 2.6c Star Iron, 15x134 to 4x4. \$\\$ 2.7c Sash Iron, 15x1343 to 1x4. \$\\$ 2.7c Miscellaneous Shapes. \$\\$ D, 2.6 to 3.5c Miscellaneous Shapes. \$\\$ D, 2.6 to 3.5c No. 1
Globe	Saah Iron, 15(x3/x3-16
Folished and Pointed28 21 20 19 18 Southern, all sizes	Pence and Brads. 18d to 6od
Recks and A. Ness New Het, dis 69&:10&:25 cash	Miscellaneous Shares. Various shapes.
Scandinavian Pad Locks. 8 doz	5.50 136 " 3.50 1.00 136 " 3.50 1.00 136 " 3.25
% doz	34 in
Tubular	Clinch—All sizes 3.50 Ed and 7d 3.50 4.25
Mattecks. Long and Short Cutter	50. 3-50 30. 4-25 40. 3-50 20. 5.50 Finishing. 136 to 134 in. 4-50
Enterprise Mfg. Co. s Measuring Fancetsdis 20 s Stebbins Gates	134 "
Landers, Frary & Clark's Peti Oleum	Tod to 30d. 3.25 4d. 4.00 8d. 3.50 3d. 5.00
Meas Cutters.	41
Hale's	Boat Spikes—All sizes
Mattecks	Boat Spikes—All sizes. 3.25 Each half keg to cents extra. 3.25 TERMS.—Note or acceptance at 60 days; or a discount of 2 per cent. for cash, if remitted within to days from date of invoice. An abatement of 10 cents per keg allowed upon orders of 200 kegs or over.
Plane from Sandusky dis 10 & 10 & 10 & 10 & 10 & 10 & 10 & 10	##eel. ## Square, Flat and Cetagon Tool Steel. ## to 2 in 150 ## to 2 in 150 ## to 3 in 150 ## and 3½ to 4 in 150 ## and 3½ to 4 in 150 ## to 1 in 150 ## to 2 in 150 ## to 2 in 150 ## to 2 in 150 ## to 3 in 150 ## to 2 in 150 ## to 3 in 150 ## to 2 in 150 ## to 3 in 150 ## to 4
Stanley's Adjustable dis 00210 cm 20010	\$\frac{1}{2}\$ and \$\frac{3}{2}\$ to \$4\$ in 150 \$\frac{1}{2}\$ 2 in 240 \$\frac{1}{2}\$ ingle and Double Shear Natilers—Same as Tool. \$Knife, Tup, Die, Mill Pick, Drill—Ordinary sizes
HunrsBickford\$7.50, dis 20&10 \$ PumpsBickford\$7.50, dis 20&10 \$ £antesStanley Boxwood	Knife, Tap, Die, Mill Pick, Drill—Ordinary sizes
#\$eelyards- Hart's Pattern	Mackinery Steel—Round. 34 to 2 in. 1/9c 7-32 and 4½ to 5 in. 1/9c 7-32 and 4½ to 5 in. 1/9c 4 and 3½ to 4 in. 1/9c 5-32 in. 1/9c 6-32 in. 1/9c
Lbs 50 100 130 300 350 300 American Pattern dis 25 @ 25&10 12 0 † dos \$5*90 7*00 9*00 10*00 11*00 12*00 Lbs 50 100 150 300 25 300	Solid Cast Steel Plow, 4 to 16 by 3-16 to 3-16 in856c
Lbs. 50 100 150 200 25 200 25 200 English Pattern 41 200 8 27 10 27 12 27 14 27 14 27 15 20 25 25 200 150 25 200 250 250 250 250 250 250 250 25	Apricultural Steels. Solid Cast Steel Plow, 4 to 16 by 3-16 to 36 in. 9c "Iron Center Plow", 4 to 163-16 to 36 in. 9c "Iron Back Plow" 4 to 163-16 to 36 in. 8d "Iron Back Plow" 4 to 163-16 to 36 in. 8d Soft Steel Center Plow", 4 to 163-16 to 36 in. 9d Landside and Cultivator, C. 8, 36 in. thick 95/9c Circular Plow Cultures 4 to 163-16 to 36 in.
Steel and Iron	Circular Plow Coulters, 5-32 to \(\frac{1}{2} \) in. thick \(\frac{1}{10} \) ite Reaper and Scythe \(\frac{1}{2} \) in. thick \(\frac{1}{10} \) ite Rork and Hoe
Clipper No. 10, Hronge, Hinds Hoxed and	Cuttor Raps C S
Sharpened	German Spring Steel. 750c Cornstalk Cuter beveled to length 8c Planters' Hoe, C. S. 9c
Clipper No. 5, Painted Red, Boxed and Sharpened. — dos \$9.25 net Sn. Va. — Disston's Hand, Panel and Rip. — dis 30 5 Disston's Circuiar. — dis 30 5 Cross-Cut No. 2, Plain Tooth. — # ft., 45c. net Champion Tooth. — # ft., 45c. net	German, 1e to 16 g 8c Common C'st, 17 to 20 g. loc
"Champion Tooth	Common C'st, to to 16g. 9c " " 17 to 20 g14c Rolls and Castings.
Oliver Ames & Sons, new list	Housings and Castings not otherwise specified2560 Guide Plates
Washita Extra	Sand Roils and Pinions, large size
Shovels and Spades dis 50&5 g	Rolling Mill Castings under 50 lbs. 3 c Spur and Bevel Wheels, large 3 d 3 d c small 4 d 4 d 6
Axe Stone	ruleys up to 30 inches
Axe Stone	6 to 7 in. diam., 7 to 20 in. long
Flat Head Iron. dis 55 5 " Brass dis 50 5 Round Head Brase dis 51 5 " 1ron. dis 45 5	Common C'st, to to 16 g oc 15 to 26 g 14 to 26 mon C'st, to to 16 g oc 15 to 26 mon C'st, to to 16 g oc 17 to 26 g 14 to 26 to 26 to 27 to
Special	Bolts, Sorene, Nata, etc. Lewis, Oliver & Phillips, discount off Standard List. Carriage & Tire Bolts, ordinary orders 75, & 35 off net Stove Bolts
Taned dis 50&10 \$ Top dis 15 & 20 \$ " by case dis 20 \$	Stove Bolts
T.nned dis 15 @ 20 \$ by case dis 20 \$ prings — Torrey \$ dos \$200 @ 210 net philadelphia\$ in\$450; \$ is\$700 \$ dos\$5	Bolt Ends,

777	HE IDON AGE	•
	HE IRON AGE	
R doz. net 83:50) 2:50 } dia 2:00 } 01s 10&5 % 00, dis 5 % @ 4:25 net	Pat. Hot Pressed Sq. and Hex. Nuts	
Extra :0@40 %	Single Trees, Neck Yokes and Double Trees, made	
is 204:10 %	the most approved patterns. No. 1 Southern Flow Single Tree, Ironed complete, Iron all Wroughteach, 25c net complete, Iron all Wroughteach, 25c net complete, Irona all Wroughteach, 35c net No. 3 Wagon Single Tree, Iron complete, Irons all Wrought, except Malleable Ferrule.	
dis 40& 5 %	No. 4 Wagon Single Tree, Ironed complete,	
dis 30 % dis 60 % 12%c net	riveted on; one side acts as a wear fron for wheel to rub againsteach, 50c net Neck Yoke, Ironed complete, Irons all Wrought except End Ferrules, with Wt. Iron Kingseach, 60c net	
ase dis 5 % is 50&10 %	riveted on; one side acts as a wear fron for wheel to rub sgainst	
is 75&10 % @ 75&10 % dis 25 %	10 in. long by 7-to at Screw End, w set or 8 botts. 450 12 in. " 0-16 " " 8 " 550 10 in. " 0-16 " " 8 " 550 12 in. " 0-16 " " 8 " 500 14 in. " 0-16 " " 8 " 80" 500 14 in. " 0-16 " " 8 " 80" 500 12 in. " 94 " " 8 " 8 " 800 12 in. " 94 " " 8 " 8 " 800 12 in. " 94 " " 8 " 8 " 800 14 in. " 94 " " 8 " 8 " 100 16 in. " 94 " " 8 " 100 16 in. " 94 " " 8 " 100 17 in. " 94 " " 8 " 100 18 in. " 94 " " 8 " 100	
714 @ 60 % 0 @ 624 24 @ 65 % 124 @ 50 \$ 15 @ 47 4 \$ 1 30 @ 35 \$	10 III. " 9-16 " " 8 " 650 12 III. " 9-16 " " 8 " 950 14 III. " 9-16 " " 8 " 80 10 III. " 9-16 " " 8 " 80 12 III. " 9-16 " " 8 " 80 12 III. " 9 " " 8 " 80 12 III. " 9 " " 8 " 900 14 III. " 9 " " 8 " 900 16 III. " 9 " " 8 " 100 16 III. " 9 " " 8 " 100 17 III. " 9 " " 8 " 100 18 III. " 9 " 8 " 100 19 III. " 9 " 9 " 9 " 100 19 III. " 9 " 9 " 9 " 100 10 III. " 9 " 9 " 9 " 9 " 100 10 III. " 9 " 9 " 9 " 9 " 100 10 III. " 9 " 9 " 9 " 9 " 100 10 III. " 9 " 9 " 9 " 9 " 100 10 III. " 9 " 9 " 9 " 9 " 9 " 9 " 9 " 9 " 9 "	
\$60-00 net 63-00 net 60-00 net 60-00 net 63-00 net	20 in. " §2" " 8 " 1.20 5c ≥ set for each additional inch over 14 inches. All lengths made.	-
63.00 Her	Chains, Straight or Twist Link. Reiter & Morton's List. 5-16. 9-16. 5-34. 5-34. 5-16.	
% In . 1.90c	Horse Shoes, Etc.—In 100 keg lots.	
% in .1.90c in 2c % in .2.20c 2c 2c	Juniata Horse Shees per keg, \$3.24 Mule 4.25 Steel Twe Calks per 7½c lb Thistlewood & Co.'s Self-Sharpening Horse Shoes per keg, \$5.25	1
2,500 2,500 2,800	Shoes	2
5-162.100 5-162.300 5-162.300	Assorted Kegs (all sizes)8c	- 161 -
6 in 3.30c	1256 BTIn	
to 20.,4.800 to 20.4.300 to 20.3.800 to 19.3.400	Per Box of 50 Feet.—Discount 70 % @ 70\$10 %.	
	Single Strength. Size, AA. A. B. C. 6x 840 to X 15.	
2,60e	Size, AA. A. B. C.	,
3,300 4,800 4,807 1. Chare'l	26 x 36 to 26 x 44. 14.50 13.25 10.75 26 x 46 to 30 x 59. 15.00 14.00 11.25 30 x 52 to 30 x 54. 11.25	
5e 5.20e 5.60e wide, not	39 X 50 to 49 X 50	
9½e	18 X 22 C0 20 X 30. 17.25 17.25 17.75 18.59 11.74 18.59 15 X 22 C0 20 X 30. 19.75 17.25 14.50 20 X 28 t0 24 X 30. 19.75 17.25 14.50 20 X 28 t0 24 X 30. 21.00 18.50 15.75 26 X 36 t0 26 X 44 23.25 21.25 17.25	
150	30 X 52 to 30 X 54	
d.	glass more than 40 inches wide. All sizes above 50 inches in length and not making more than 81 united	1 2 1
4e 4b4e	inches, will be charged in the 84 united inches bracket	
	(The Chicago Stamping Co., 10, 12 & 14 Lake St.)	
" 3 e	10x14 (A, " , 900) DX	0000
₩ To 2.90 ₩ To 2.70 	12x12, IC	00000
2.6c 2.6c 2.7c 3.25c 2.6 to 3.5c	20x29, 1C, Best 13 5 20x29, 1X, 17 5 10x14, 1C, Coke Plates. 6 0 14x20, 1C, 6 0	0000
\$3.25	Large 1'1gs 18c Bars 20	e
4.00 5.25 4.25 4.00	Loose Sheets.	00000
8,50	Plantshed 34 Boller lengths 86 Bolt 29 Braziers** ** theors 29	
3.25 3.50 4.25	Best Fine	20 20 20 20 20 20 20 20 20 20 20 20 20 2
4.25 5.50 4.50 4.25 4.00 3.75	Roofing 12 12 12 13 14 15 15 16 17 16 17 17 17 17 17	2
3.75 3.75 3.75 4.00 5.00	Sheet Iren.— Smooth, Smooth Smooth Common, Com. Charcoal, Juniata	
2.75	1 27 3'400 4'200 640 8%0	0
discount lays from	Russia iron.— No. 1 Stained	-
n16e	A	6
n19c 24c ool. mes13c		
n1016e n1316e 1816c 16 in716e	D. W. Hazelton & Co.,	
-16 In8%e	MANUFACTURERS OF	
8e 81/ge 9e 91/ge	UUNNI	
70	COMBS,	
814c 814c 714c 8c 9c	ridjastabio Econ Emonia	
to 20 g. 10c 16 g13c 20 g14c	Conductor Pines	
1% @ 2c led2%c 3 c 2 @ 214c	Wash Boiler Covers. Stamped Ware and	
3 C	Pat. Metallic Wash Boiler and Kettle Bottoms.	
3 @ 31/4C	Stamped and Press	

Stamped and Press Work to order.

Manufacturer of Ayers' Hydran

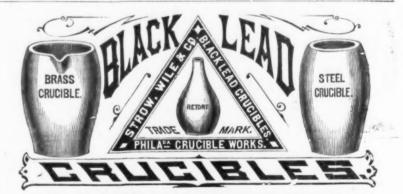
Having removed our Factory to 622 to 642 East 14th Street, New York, we offer our old premises

To Rent. FOUNDRY MANUFACTOR

conveniently located foot South 9th Street, E. R., and No. 74 to 85 First Street, Brooklyn, E. D., within one block of ferries to Grand and Roosevelt streets, New York.

Guy C. Hotchkiss, Field & Co.

622 to 642 East 14th St., New York.



FOR MELTING ALL KINDS OF METALS,

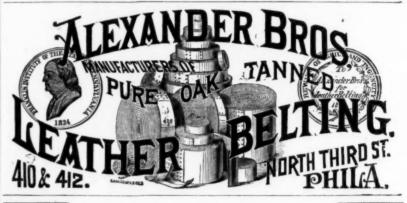
Sunny Side Stove Polish.

Lumber Pencils, Foundry Facings and Lubricating Plumbago.

WILE, SIEDEL & CO.,

Nos. 1324, 1326, 1328, 1330, 1332 & 1334 Callowhill St., Phila. GENERAL AGENTS:

Messrs. HALL & CARPENTER, 709 Market St., Phila.



WM. F. FOREPAUGH, JR. & BROS. Manufacturers of SUPERIOR OAK TANNED

EATHER BELTING Best Quality Lace and Strap Leather on Hand, Rivets, Belt Hooks, Dubbing, &c. N. W. Cor. Randolph and Jefferson Sts., PHILADELPHIA.

Morse Twist Drill and Machine Co.,

NEW BEDFORD, MASS., Sole Manufacturers of

Morse Patent Straight-Lip Increase Twist Drill, Beach's Patent Self-Centering Chuck, Solid and Shell Reamers.

BIT STOCK DRILLS,

Drills for Coes, Worcester, Hunter and other Hand Drill Presses. Beach's Patent Self-Centering Chucks, Center and Adjustable Drill Chucks, Solid and Shell Reamers. Drill Grinding Machines. Taper Reamers, Milling Cutters and Special tools to order.

All Tools exact to Whitworth Standard Gauges. GEO. R. STETSON, Supt. EDWARD S. TABER, Treas.



DRIPPING AND BREAD

PANS:

Budke's Patent Sheet Iron MEASURES.

Black and galvanized House, Steamboat, Sta-ble and Well BUCKETS.

Powder Kegs, Paint, Putty and White Lead PAILS.



LEWIS, DALZELL & CO.,

Pittsburgh, Pa.



PAT. OCT. IN GE

PAT. FEB. 75.76.



VALLEY MACHINE CO.

Manufacturers,

Wright's Patent. Easthampton, -

Massachusetts.

COPPER, LEAD,

GOLD. SILVER.

TRON OF COAL

MINES

CENTENNIAL EXHIBITION

Five Medals of Honor were awarded these Pumps for superi-ority.

Knowles' Patent Mining Pumps. Arranged with Special Reference

to Working Water Containing Dirt, Gritty Matter or Acid.

Pumps of capacity of over one million gal-lons per day are now delivering water through 600 feet vertical column, working entirely without shock or jar, the entire stoppages of Pump aggregating less than twelve hours per year.

Knowles' Steam Pump Works.



The Eclipse Steam Pump.

A New, Cheap and Simple Boiler Feeder.

This differs from any Pump of its class by doing away with a sliding box or strap, and supplying the places of the same by a hardened steel roller and steel pin. By this construction a great amount of friction is avoided. It is durable, handy and cheap. Anyone of ordinary intelligence successfully operate it. Prices range from \$45 upwards Send for circular.

M. SHULTZ,

No. 170 Plum Street,

CINCINNATI, OHIO.





with Patent Top.

THE ONLY SAFE, DURABLE AND ODORLESS OIL STOVE

MADE.



Double Cook

EXAMINE THIS AND BUY NO OTHER.

Liberal Discounts to the Trade.

SEND FOR CIRCULAR.

MANUFACTURED BY

THE FLORENCE MACHINE COMPANY.

Florence, Mass.

PRINCIPAL OFFICES: 39 Union Square and 49 Murray Street, New York; 476 Washington St., Boston; 59 State St., Chicago; 1310 Ridge Ave., Philadelphia; 84 Wood St., Pitttsburgh, Pa.; 67 Arcade, Providence, R. I.; 267 Middle St., Portland, Me.

IRON AND STEEL DROP FORGINGS

All shapes, small and large, including
Gun, Pistol, Wrench Bars, &c Also, Die Sinking. Manufacturers also, of
Bricklayers', Moulders' and Plasterers' Tools, Saddlers' Round and Head Knives.

WILLIAM ROSE & BROS.,

36th & Filbert Sts., West Philadelphia.

L. M. RUMSEY &

Witherell's and Churchill's Patent



For Chain Pumps.

These Patents cover the use of the Rubber, the use of the Nut and Bolt for expanding, the use of the Tube and Valve for draining. All others are infringements, and manufacturers and dealers in infringing Buckets will be prosecuted to the full extent of the law.

For Rubber Buckets, Chain Tubing, Curbs and Fixtures, address



L. M. RUMSEY & CO., 811 North Main Street, St. Louis, Mo., U. S. A.

THE CRAHAM ADJUSTABLE STOVE PIPE.

(Pat. Jan. 9, 1877.)

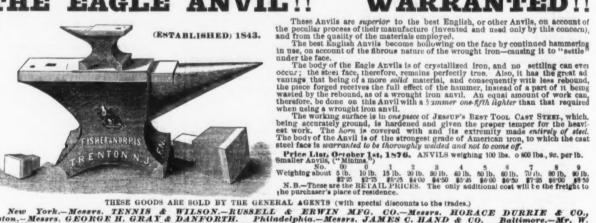
Medal Awarded at American Institute, 1877.

Sidney Shepard & Co.,

Sole Manufacturers, BUFFALO, N. Y.

EAGLE ANVIL!! THE

WARRANTED!!



New York.—Messrs. TENNIS & WILSON.—RUSSELL & ERWIN M.F.G. CO.—Messrs. HORACE DURRIE & CO., Boston.—Messrs. GEORGE H. GRAY & DANFORTH. Philadelphia.—Messrs. JAMES C. HAND & CO. Baltimore.—Mr. W. H. COLE Louisville.—Messrs. W. B. BELKNAP & CO. FISHER & NORRIS, Sole Manufacturers, Trenton, N.J.

"DRAW UP" PRESSES,

MADE BY M. & H. MFG. CO., WATERFORD, N. Y.

Send for Catalogue of the



FIRMENICH Safety Steam Boiler.

test quantity of Steam at the Centennial Exhibition. Tubes never require cleaning or scraping. Boilers in use for four years without getting dirty

J. C. & F. FIRMENICH, Office, 13 Mortimer Street, Buffalo. N. Y.

JOHNSON'S PATENT UNIVERSAL LATHE CHUCK.



We invite attention to the superior con struction of this chuci Its working parts are absolutely pro-tected from dire and chips. It is rong compact and durable, and will hold the greatest variety range the full diame

ter of the chuck. For Price List address.

Lambertville Iron Works, Lambertville, N. J

SUPPLIES

Railways, Machinists and Amateurs, Gum and Leather Belting, Packings and Cotto Waste, Babbit Metal.

for Machinists and Amateurs; Barnes' Foot Power Scroll Saw; Foot Lathes all kinds, Sole Agents Earler Steam Engine, fron and Wood Working Machinery. Send for Price Lists.

JACKSON & TYLER, 16 German St., Baltimore, Md.

MANUFACTURERS' SUPPLIES. The Best and Lowest Price.



A. ROGERS. 19 John Street, New York.

A few doors from Broadway Steam Gauges, Belting, Chucks, Drills, Packing, Governors, Jacks, Oil Cups. STEAM PUMPS for Pumping, Fire Purposes, and Boiler Feeding.

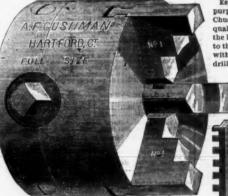
Also VALVES, PIPING and VISES.
The Largest Stock in the City.

THORNE, DeHAVEN & CO., Drilling Machines,

21st Street, above Market, Philadelphia.

PORTABLE DRILLS. Driven by power in any direction.
RADIAL DRILLS. Self-feed—Large Adjustable Box Table.
VERTICAL DRILLS. Self-feeding.
MULTIPLE DRILLS. 2 to 20 Spindles.
HORIZONTAL BORING AND DRILLING MACHINES.
HAND DRILLS. CAR BOX DRILLS.
SPECIAL DRILLS: For Special Work.

THE AMATEUR CHUCKS.



Especially designed for Foot Lathes and for all Especially designed for Foot Lathes and for all purposes where a Chuck is used; and as a Drill Chuck for machinists' use it has no superior in quality, capacity or price. Is made to attach to the lathe by taper plug, face plate, or to screw on to the spindle. Will hold pieces 3½ in. diameter with No. 1 Jaws; and with No. 2 Jaws will hold drills from 1-16 to ½ in. Warranted satisfactory

Price, including Key and Screws
for face plate, with either No. 1 or

for face plate, with either No. 1 or No. 2 Jaws, \$5.50. With two sets of Jaws, \$6.50.

Price to dealers fur

nished on applica Address A. F. Cushman,

res

OF

HARTFORD, CONN. Send for catalogue.



BROWN'S CALORIC ENGINE.

Superior to any Hot Air Motor in Market.

Is the most perfect substitute for any other power. Its special merits are: Simple construction and durability. The consumption of fuel is about 3½ pounds per horse-power and per working hour. Accidents of explosive nature are impossible. No water tax. No extra insurance. Replanishing the self-feeder does not cause any stoppage or slacking the power. These machines can be seen in sizes of 3½, 7 and 14 horse BROWN CALORIC ENGINE CO., 57, 59 & 61 Lewis St., N. Y.

Aug. P. Brown's Safety Steam Engine Covernor.



Ludlow Valve Mfg.

988 to 954 River St. & 67 to 83 Vail Ave., Trey, N. Y.,

VALVES.

Double and Single Gate, & in. to 48 in.—outside and inside Screws, Indicator, &c. for Gas, Water and Steam. Send for Circular.

Also FIRE HYDRANTS.

NEW IRON TACKLE BLOCKS.

Norcross Patent.







Galvanized Malleable Iron Shell and Sheave, Steel Hooks, Steel Pins,

Superior to Wood Blocks on account of not Checking and Cracking.

The Strongest, Lightest, Easiest Running and most Durable Block yet produced. Send for sample and price list of same to



Providence Tool Co., PROVIDENCE, R. I.

Or to J. H. Work, 13 Pearl St., Boston, Mass.; S. H. & E. Y. Moore, 68 Lake St., Chicago, Ill.; Henry B. Newhall, 11 Warren

PENFIELD BLOCK WORKS

m





Before buying your Tackle Blocks look well to the brand.

P HORSE NAIL CO.,

Cleveland, Ohio.

These Nails are manufactured from the Best Selected Stock.



These Nails

Guaranteed to be Equal

to the best in the market, and are

sold at greatly reduced rates.

NORTHWESTERN HORSE NAIL CO.

Hammered & Finished Horse Nails.

We offer our Finished Nail to the trade with the confidence that it has no equal in the market. It is the genuine "Northwestern" Nail, Finished, and we give it our unqualified guaranty. Office and Factory, 56 to 68 Van Buren St., Chicago.

A. W. KINGSLAND, Secretary.

Our agents, Graham & Haines, 113 Chambers Street, New York, carry a full line of our roods, and will be pleased to serve you at Factory prices.

GLOBE NAIL COMPANY,

Pointed Polished & Finished Horse Shoe Nails.

Recommended by over 20,000 Horse Shoers.

All nails made from best NORWAY IRON, and warranted perfect and ready for driving. Orders filled promptly and at lowest rates by

GLOBE NAIL CO., Boston, Mass.

RHODE ISLAND HORSE SHOE CO.,

Manufacturers of

PERKINS and RHODE ISLAND PATTERNS of

HORSE AND MULE SHOES. THE RIVET BUCKET CO., 54 4 56 Franklin St., Chicago.

The Oldest Shot Tower in America.



SPARKS' American Chilled Shot.

Rivaling the English and all Others. STANDARD DROP & BUCK SHOT AND BAR LEAD.



The Perfect DOOR STOP AND HOLDER.

Will catch and hold the door every time, and no wind can blow it loose. It saves the wall, the paper, glass and slamming of doors. Liberal Discount to the Trade. Address, SPENGLER & CO., East End, Pittsburgh, Pa.



B. W. PAYNE & SONS, Corning, N. Y., Established in 1840.

Eureka Safety Power h.p. cyl. ht. space. wt. price.

2 | 3\)\(3\)\(4\)\(4\)\(8\)\(in\)\(40\)\(325\)\(900\)\(40\)\(35\)\(6\)\(5\)\(72\)\(72\)\(42\)\(2700\)\(40\)\(40\)\(6\)\(5\)\(72\)\(72\)\(42\)\(2700\)\(40\)\(6\)\(6\)\(72\)\(72\)\(42\)\(2700\)\(40\)\(6\)\(6\)\(72\)\ Also, Spark Arresting Portable and Stationary Engines for Plan tations. Send for Circulars.

WESTON DYNAMO ELECTRIC MACHINE

The rapid increase in the use of Nickel-Plating owing to the introduction of the Weston Machine and the very low price of nickel material, enable us to give greatly reduced estimates for complete

outfits.

Store furnishing outfits specially adapted for Store Work, giving a pure white deposit on plain or mat surfaces.

or mat surfaces.
Outfits complete, with Dynamo-Electric Machine
Tanks, Anodes, Solution, &c., &c., \$250.
We beg to refer to the following Stove Manufacturers among 500 other houses using the Weston Machine: Richardson & Boynton, S. S. Jewett & Co., Detroit Stove Works, Michigan Stove Co., Cooperative Stove Co., E. & C. Gurney, Hamilton & Toronto, and many others. INFRINGEMENTS.

We call attention to infringements of the Weston Machine, in which Automatic Switches are used to prevent change of current. The Weston Co. are owners by grant or purchase of all forms of Automatic Switches for Plating Machines. The adoption of these machines will certainly lead to greatless to parties purchasing or using them.

CONDIT. HANSON & VAN WINKLE Sole Agents NE WARK, N.J. U.S.A.

GEO. W. JACKSON, Successor to S. S. OWEN & CO.,

Nickel Plater And Polisher of all kinds of Metals,

211 East 22d Street, bet. 3d and 4th Avenue NEW YORK.

JOHN W. QUINCY, 98 William Street, New York.

NICKEL.

Solder, Lead, Block Tin, and other Foundry Metals. Cut Nails.

A. T. COLT, Nickel - Platers Supplies. ARMATURE ELECTRO-PLATERS MACHINES.
PURE NICKEL in grain,
Anodes, Sulphates and
COBALT, metallic & sulBATTERIES & EASTERIALS,
BUFFING LATRIES, &c. phate.

Planta Lime, CROCUS,
Silver (.000 pure) granulated or rolled. Gold and Plainum rolled to order.

47 Beckman St., N. V.

PHILADELPHIA. 374 N. 7th St. WORKS.



We make a specialty of

Reported by Macomber, Bigelow & Down, 186 to 184 Oliver St. Blue Jacket Boy's 900

Axe Handles,—Wadleigh's Oak—
A. (Extra, \$250. B No.1) \$200. C (No.2) \$1'50 \$ doz

Hind Hinges.—Oro Wasaburn's... hun d sets \$6 50

Orr of Wasaburn's... per hundred set \$4 50

Boits.—Carriage, Phila ds625 \$2

Carriage Common.

Glores.—Best Refined.

Borits.—Carriage, Beskus'

Borits.—Garriage, Common.

Glores.—Best Refined.

Borits.—Carriage Common.

Glores.—Best Refined.

Borits.—Carriage Common.

Glores.—Best Refined.

Borits.—Best Bracket Saw Frames, with patterns complete...... doz \$5 50 88 Cards, Cards No. X, per doz., 80°55.

Curry Cards No. X, 0°50.

Horse No. X, 0°50.

Wool No. SX, 2°50.

Cotton No. 10, 4°50.

Cartridgea. U. S. Cartridge Co.

Cards. Shock Goods... Congasses and Dividers.—Bemis'... P. S. & W dis 30 × Cordage.—Manifa (usuai trade dis.) \$256 Corn i looks per doz \$6.50 Corn i looks per doz \$6.50 Crow Hars.—Solid Steel \$1.50 Crow Hars.—Solid Steel dis 30 × Dividers.—Cook a Nickei Plated dis 30 × Dividers.

Per doz. — Annifa (usuai trade dis.) — Per doz. — Dividers.—Cook a Nickei Plated dis.) — Dividers.—Cook a Nickei Plated dis. — Dividers.—Cook a Nickei Plated d Torrey's.... Emery.—Alden.
Wellington Mills
Files.—American
Nicholson, new

Hingrs.—Sirao and T Stanley Works... dis 60 g
Fine. Loose and Fast Joint... w b 5c
Wrought Screw Hook... b 5c
Knobs.—ump. Extension Silvered Glass... dos \$8 to
Anterns.—Lucular No. 0... dis 1000
Guarded. No. 74. (With kerosene oil and candle
burners.)

| Diston's | dis 20 s Alken's
Scytho Stones"Willoughby Lake," first quality \$ gross \$6:50
second quality \$5.0

| Shevels. - O. Ames | Second quality |

Agricultural.

Wringers.
Universal XX No.2. # dos \$68 w; 2%, 60 w Novelty, No. 10.... No. 23....

ST. LOUIS. Corrected weekly by Semple & Birge Mfg. Co.

Axes.—Wm. Mann's, Red Warrior. 9 dos 9 50
"C. Marshall" 9 00
Handled. \$5 extra
Double Bitted. 12 00
Axies.—Jones, Reny & Co. a' Fatent Lubri
cattan, Jones, Reny & Co. a' Fatent Lubri
cattan dencord Axies.
Comano Comano Comano
Comano Comano
Comano Comano
Comano Comano
Comano
Comano Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano
Comano Axes.—Wm. Mann's, Red Warrior....... 9 dos 9 50

Corn Shelters.—Sandwich Mfg. Co.'s—
Fower Shelters. dis 10 s
Band Shelters. Special rates
Cortem Gins.—Carver, with 10 in. Saws, \$3.2 a saw, net
12 in. Saws, \$4.00 a saw Cultivators.— Buckeye "4 shovel. S. \$39 2x Crew Bars.—Steel Fonted. B a 60 2x Crew Bars.—Steel Fonted. B a 6 Drag Saw Machines. Culver's 1000 Drag Saw. Saw. Culver's 1000 Drag Saw. Culver's 1000 Drag Saw. Glas 20 Fanning Millis.—Nesh & Cultivs. dis 20 Fanning Millis.—Nesh & Cultivs. dis 20 Feed Cutters.—Burdick National. new list, net Sanford No. 1. 89 25 : No. 2, 47 25 ... met Bowman's Lever Culter, 20 25 ... met Files.—Black Diamond, Mill.

Bastard....
Taper..... Forks and tioes.
A'-urn Mfg. Co.'s Hay and Manure Forks Perpetual. dis 10

Hay Knives.
Dunn Edge Tool Co. s... # dos \$12 00 ne
Lightning (Weymouth's Patent). # doz \$15 05

Horse Nation. —National Patent Pointed. 25c **ste
National Patent Pointed, extra finished. 25c

Horse Powers. —Pitts or Carey's Patent. dis 10 3

Wheeler's Railway. dis 10 3

Sandwich Lever. dis 10 4

Hose. dis 10 4

Hose. ** Hose. Boston Belting Co.'s Rubber Medium Sizes....dis 50 s 8. Siz. Hydraet...dis 61 % Geo. Marnes & Co. 's Knives. dis 40 s.

Read Scrapers. Steel. dis 40 s.

Sections. dis 40 s.

Sections. dis 40 s.

Sections. dis 10 c.

Sections. dis 10 c. Spaths and Cradies.—Seymour Mic. Co.'s. .dis 25g Serghum Machinery.—Bell Cane Mills... uis 30 g Scantifn's Seamless Pans and Evaporators... uis 20 g Wheetburrows.—Champion iron wheel. \$\int \doz \$1950 \\
Champion Wood Wheel. \$\int \doz 3750 \\
Garden. \$\int \doz 37.00

St. Louis Metal Market. (Corrested Weekly by Messrs, R. Selless & Co.) The Finance C. 10214, Best Char. \$ 650 | DX, 123 gx17, B. Char. \$ 1 X. 10214, 850 | DX, 123 gx17, B. Char. \$ 1 X. 10214, 850 | DX, 123 gx17 | DX, 123 gx18 | DX, 123 gx18 | DX, 123 gx18 | DY, 123 gx18 |

Alken's Genuine, 418.

"Saw Sets, \$13 dis 40&10 5

"Pocket Wrenches, \$8 dis 50&10 5

Blake's.

"Pocket Wrenches, \$8 dis 50&10 5

Blake's.

"Saw Sets, \$13 dis 50&10 5

Blake's.

"Pocket Wrenches, \$8 dis 50&10 5

Blake's.

"Pocket Wrenches, \$1 60 00 Copper Bottoms Soldering Coppers

We make a specialty of the wholesale trade.

Send for price and descriptive lists (four patterns of Buckets) with discounts to dealers.

Quarter million in satisfactory use.

Quarter million in satisfactory use.

Quarter million is satisfactory.

Quarter million is satisfactory



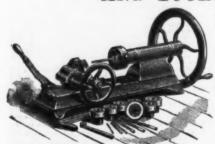
elt Power Hoist.

INDEPENDENT STEAM ELEVATOR ENGINE. Hydraulic Elevators to run from City Pressure; Condensed Air and Hydraulic Elevators operated by Steam Pump; Independent Steam Elevators; Belt Power Elevators; Portable Hoisting Machines.

All kinds of HOISTING MACHINERY a specialty.

STOKES & PARRISH, 3001 Chestnut St., Philadelphia.

PAT. SCREW CUTTING MACHINERY AND TOOLS, &c., &c.



The Lightning Screw Plate, Lightning Bolt Cutters, Green River Drilling Machines. Green River Tire Upsetters,

FRASSE & COMPANY, 62 Chatham Street, New York.

P. O. Box 4627. ufacturers, Importers and Ex

Fine Tools & Supplies for Machinists, Blacksmiths and Fine Metal Workers.



Elterich's Celebrated Taps and Dies, Di Holders, Patent Tap Wrench and Patent Drill Chucks. Henry Whiton's Celebrated 2 in. Level Chuck. The Briggs Lathe Howeli's Turning

&c., &c. New York Agents for THE LIGHTNING SCREW PLATE.

Keystone Portable Forges.

everal sizes and 20 styles, for every purpose from the lightest to the heaviest work. Also

PRESSURE BLOWERS AND

EXHAUSTERS.

Send for catalogue K. P. F. Co.,

218 Carter Street, - Philadelphia.



HAMMER & CO., Branford, Conn.,

MALLEABLE IRON:

Hammer's Adjustable Clamps. Hammer's Malleable Iron Oilers. Hammer's Mall, Iron Hand Lamps.

Hammer's M. I. Hanging Lamps.

Malleable Iron Castings



upwards to 200 M. P. Plain or with Automatic Variable Cutoff. We can refer to hundreds in use, of all sizes, giving perfect satisfaction.

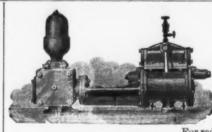
Yacht Engines and Steel Boilers, Shafting, Pulleys,

Hangers, &c. Send for pamphlet, stating where you saw this, to

Fitchburg Steam Engine Co., Fitchburg, Mass., U. S. A

DUC'S IMPROVED ELEVATOR BUCKET.





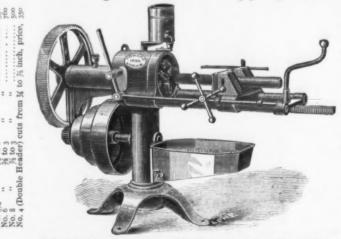
A. S. CAMERON'S

is the Standard of Excellence at Home and Abroad.

For reduced price lists address A. S. CAMERON, East 23d Street, New York.

SCHLENKER'S

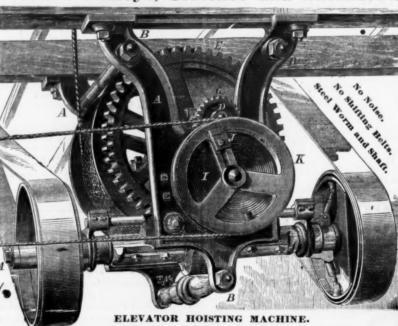
Screw Cutting and Nut Tapping Machines.



This engraving represents a No. 51/2 Machine, and cuts from 3/6 to 2 inches.

MANUFACTURED BY THE HOWARD IRON WORKS, Buffalo, N. Y.

VOLNEY W. MASON & CO., Providence, R. I. Friction Pulleys, Clutches and Elevators.



RICHARD DUDGEON

No. 24 Columbia Street, New York, Maker and Patentee of the Improved Hydraulic Jacks Punches. Roller Tube Expanders and Direct Acting Steam Hammers.

Communications by letter will receive prompt attention. Jacks for pressing on Car Wheels or Crank Pins made to order.

H. S. MANNING & CO.,



THE MACKENZIE PATENT CUPOLA & BLOWER.

Smith & Sayre Mfg. Co.,

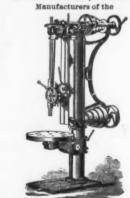
PROPRIETORS, 21 Cortlandt St., New York

This Cupola has made a great revolution in melting iron. It differs from all others in having a continuous tuyers, or in other words, the blast enters the fuel at all points. Above one ton capacity per hour, they are made oval in form. This brings the blast to the center of the furnace with the least resistance and smallest possible amount of power, and in combination with the continuous Tuyere causes complete diffusion of the air throughout the furnace, and uniform temperature, melting few or fifteen ions an hour with the pressure of blast required to melt two or three tons in an ordinary Cupola. It also enables us to save very largely in time and fuel, the experience of our customers showing a gain of them in the internal five to forty per cent fuel over the ordinary Cupola, and a setter quality of casting, especially in light work. This is due to the thorough diffusion of the air and more perfect combustion, extracting less carbon from the iron, making a softer and tougher casting.

We manufacture these Cupolas of any desired



P. BLAISDELL & CO., WORCESTER, MASS.,



BLAISDELL" UPRIGHT DRILLS

Hoisting Engines



WITH Improved
Patent Friction Drums. Adapted for Mines, Dock Building, Pile Driving, Quarries,

J. S. MUNDY, 7 R. R. Ave.,

Newark, N. J.



H. L. Shepard's Celebrated Foot & Power LATHES, Drill Press Scroll, Circular and Band SA WS, Also FITTINGS of all kinds.

1. L. Shepard & Co. 88, 90, 92 Elm St. CINCINNATI, O



PITTSBURCH MFC. CO.,

Manufacturers of Nail and Spike Machines, Bolts Nuts, Washers, Rivets, &c. Castings, Forgings and Blacksmith Work promptly attended to. OFFICE & WORKS, Raliroad St., near 28th, Pittsburgh, Pa.



Lester Oil Co., 81 MAIDEN LANE, N. Y.

Synovial Lubricating OILS.

The most Durable, Reliable & Eco-nomical Lubricant in existence; cable to every grade of machinery. Send for Cir-cular and Price List.

MINERS' CANDLES.

erior to any other Light for Mining Purposes. Manufactured by

Spe

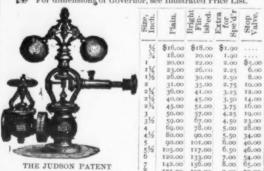
JAMES BOYD'S SON, Nos. 10 & 12 Franklin St., New York. Machinery, &c.

THE JUDSON GOVERNOR.

It is a common method to advertise Governors without cost, unless satisfactory to the customer, and then charge High Prices for loing what any good Governor will do. Various Governors interior to the "Judson" are sold in his way, operating well enough

Reduced Price List, FEBRUARY 1, 1877.

sions of Governor, see Illustrated Price List



Improved Steam Governor, 13 No Charge for Boxing or Cartage,

JUNIUS JUDSON & SON, Rochester, N. Y.

PRESSES, DROP HAMMERS, And Other Tools

FOR THE MANUFACTURE OF ALL KINDS OF



heet Metal Goods,

DROP FORGINGS, &c.

The Stiles & Parker Press Co., MIDDLETOWN, CONN.

& WILLIAMS,



Presses, Dies and Special **Machinery**

FOR WORKING SHEET METALS. &c.

Fruit and other Can Tools.

167 to 173 Plymouth St., corner of Jay, Brooklyn, N. Y., and Paris Exposition, 1878.

TRENTON" RAPID TRANSIT VISES.



PARALLEI, Swivel and Coachmakers' VISES.

The Best Rapid Adjustable Vise in the Market. Simple and durable. No chance of

getting out of order. No toggle or cam movements or parts. A trial will con-

TRENTON VISE & TOOL WORKS, Trenton, N. J.

HERMANN BOKER & CO., Proprietors,

& PECK,



Newspaper Directing Machines, &c.

Special attention given to the making of all Drop Dies.

Special Machinery fitted up to order.

NEW HAVEN, CONN.

Machinery, &c.

Established 1848.

WM. SELLERS & CO.,

600 Hamilton Street, PHILADELPHIA,

Engineers, Iron Founders and Machinists. RAILWAY SHOP EQUIPMENTS.

Our Steam Hammers, Lathes, Planers, Drills and Bolt Cutters Are of Improved and Patented Construction.

Railway Turning and Transfer Tables, SHAFTING & MILL GEARING, a specialty.

Pivot Bridges.

SGIFFARD'S INJECTOR--IMPROVED, SELF-ADJUSTING. €



Issues Policies of Insurance after a careful inspection of the Boilers.

Boilers, Buildings and Machinery.

STEAM BOILER EXPLOSIONS.

The Business of the Company includes all kinds of STEAM BOILERS. Full information concerning the plan of the Company's operations can be obtained at the COMPANY'S OFFICE, HARTFORD, CONN.,

J. M. ALLEN, Pres. W. B. FRANKLIN, Vice-Pres. J. B. PIERCE, Sec.

GEN. WM. B. FRANKLIN, Vice Pres't Coit's Pat. Fire Arms Mfg. Co.
Brothers
GEO. GROMPTON, Crompton Loom Works, Worcester WILLIAM ADAMSON, of Baeder, Adamson & Co., Philadeliphia.

A. J. DAVIS & CO., Patent Friction Hoisting Engines

For Mines, Quarries, Dock Building &c.

SHAPERS, DRAIN PIPE MACHINES, EAG AND SATCHEL MACHINERY.

Steam Engines, Wire Drawing Machinery, &c., &c.

69 N. J. R. R. Avenue, Newark, N. J.

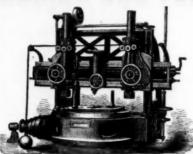
The Pratt Whitney Co., Hartford, Conn.,



Of recently Improved Construction. Pony Trip Hammers, Blacksmiths' Sheaves, Broaching and Stamping Presses, Iron Shop Cranes, Machinists' Tools, Gun and Sewing Machine Machinery. Make to order Gray and Charcoal Iron Castings of all styles and sizes not exceeding 15 tons weight, (making patterns if desired). Furnish Clamp Pulleys of light patterns, cut gears in a superior

BORING AND TURNING MACHINES.

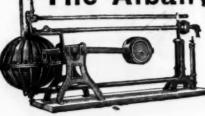
manner, &c., &c.



Special Pulley Turning Machinery, Engine Lathes, Iron Planers, Universal Radial Drilling Machines, Hydrostatic Presses, Car Axle Lathes and Wheel Borers. Latest designs and patterns. Prices very reason

NILES TOOL WORKS, Hamilton, Ohio.

The Albany Steam Trap.

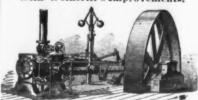


condensation from **Heating Coils**, and returns the same to the Boiler whether the Coils are above or below the water level in Boiler, thus doing away with pumps and other mechanical devices for such purposes. Apply to

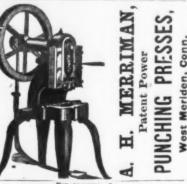
Albany Steam Trap Company, Albany, N. Y.

Machinery, St.

Corliss Engine Builders.



Engineers, Machinists, Iron Founders ROBT. WETHERILL & CO. Chester Pa.



JOSEPH C. TODD.

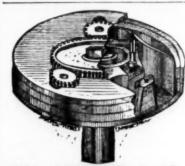
Engineer & Machinist

Portable Engine

STEAM: BEST HOLW COTH ± 4599 MSGOWAN&CO

CPWARDS.





WM. SPRAGUE & CO.,

Sprague's Improved Steam Engine and Pump Pistons.

anteed to save to per cent. over any now in use attention given to repairing, improving, &c. w circular and price list. 698 and 630 Filbert St., Philadelphia.



MEDAL and PREMIUM Awarded to T. C. ALCOTT & SON. Mount Holly, N. J.

For their Improved Turbine Water Wheels.

TUBAL SMELTING WORKS, STANLEY G. FLAGG & CO.

760 South Broad Street, PHILADELPHIA. PAUL S. REEVES, MANUFACTURER OF

ANTI-FRICTION

TURNINGS WANTED. | BRASS CASTINGS. INGOT BRASS.

ESTABLISHED 1842.

HARVEY ROWLAND

MANUPACTURERS OF ALL RINDS OF

SWEDISH STOCK, OIL-TEMPERED and WARRANTED.

Swedish Tire, Toe, Blister and Spring Steel.

CAST SPRING AND PLOW STEEL. CAST SHOVEL, HOE AND MACHINERY STEEL

OXPORD TOE, SLEIGH, TIRE AND SPRING STEEL. RESSEMER SHOVEL AND PLOW STEEL.

RESSEMER MACHINERY AND CULTIVATOR STEEL

RE-ROLLED NORWAY SHAPES. NORWAY NAIL RODS ROLLED AND SLIT FROM SUPERIOR BRANDS.

F. B. CRIFFIN.

No. 98 Chambers Street,

NEW YORK.

OFFICE OF AND AGENTS FOR

E. H. TRACY, Proprietor J. L'Hommedieu Ship Auger Works.

These celebrated Augers have been in the market since 1818. Their reputation for hard wood boring for railroad use and bridge building is well known to the trade.

WATROUS & CO., Ship Augers and Bits.

Established in 1844. The quality and reputation of these goods stand the same as the L'Hommedieu.

WATROUS & CO., Patent Adjustable Handle Drawing Knives. Commenced making these goods in 1857.

GILLET & CO., Proprietors of Nobles Mfg. Co., Bits and Augers of all kinds. Established in 1844 at Ravenna, Ohio, and 1863 at Elmira, New York.

GEO. S. WILDER, Proprietor of P. Merrill's Chisels & Drawing Knives.

H. H. MAYHEW & CO., Shepardson's Double Cut Gimlet Bits, Etc. The first Double Cut Gimlet Bits made in America in their shop, 1855

BENJAMIN PIERCE, Auger Bits and Car Bits. Special attention paid to Machine Bits.

PHILLIPS MFG. CO., Patent Boring Machines. C. L. JEFFORDS, Axes and Edge Tools. Established 1834.

J. T. PAINES, Patent Solid Head Auger and Machine Bits.

We will have our Illustrated List of Tools and other goods ready for distribution

STEEL CASTINGS. **IMPROVED**

Under Hainsworth's Patents.

We make Castings practically free from blow-holes, of steel which is as soft and as easily Worked and Welded as Wrought Iron, yet is STIFF, STRONG and DURABLE, with a TENSILE STRENGTH of not less than 65,000 lbs. to the square inch. In short, our Cast INGS UNITE THE QUALITIES OF STEEL AND WROUGHT IRON.

Wheels and Pinions, Dies and Hammer Heads, Engine and Machinery Castings of all descriptions, Railroad Frogs and Crossings, Plowshares, Moldboards and Landsides WE USE NO CAST IRON.

Send for circular. PITTSBURCH STEEL CASTING CO., PITTSBURGH, PA.



Manufacturer of Machinists' Hand, Machine or Nut, Blacksmiths Taper, Gas and Steam Fitters' TAPS; also Machine Screw Taps (American Screw Co. Standard), Steam & Gas Fitters' Stocks & Dies, Screw Plates and Dies and Solid Boit Dies. Send for price list.

The Reading Reading. J. H. Sternbergh,

Bolt & Nut Works. MACHINE BOLTS, HOT PRESSED NUTS.

Railroad Track Bolts, Boiler and Bridge Rivets, Bolt Ends, Washers, Wood Screws, Turnbuckles, Refined Bar Iron, Etc., Etc., Etc.

PHILADELPHIA, PA.

Office and Warehouse. No. 216 & 218 N. THIRD ST. Manufacturers of

STEEL CASTINGS. A Substitute for Steel and Wrought Forgings

Office: 307 Walnut St., Phila.

DIAMOND



LANTERN.

R. E. DIETZ. AA & SE Pulton St., N. V.

Manufacturer of

TUBULAR LANTERNS, 'Catch-em-Alive' Mouse Traos.

Mill Machinery For Sale.

FOR SALE,

A complete set of Zinc Rolling Machinery, con-isting of three sets of chilled rolls, with stands ed plates, pinions, couplings, etc., the whole well aspited to sheet metal rolling. The stands and ed-plates would be applicable to rail or other say iron rolling. ers for the whole or part of this machiner; e received by

WM. ALLEN SMITH,

Ansonia, Conn.

D. ARTHUR BROWN & CO., Fisherville, N. H

From New Patterns. NEW IMPROVEMENTS STRONG AND POWERFUL. Cost One-third Less than any Drill in the Market. H. BICKFORD,



Illustrated Circular and Prices. Weissport

VOLNEY W. MASON & CO., Friction Pulleys,
Friction Clurches
For connecting Shafting and Gearing.
Hoisting Machinery & Elevators, Shafting,
Hangers and Gearing.
Lafayette Street, Providence, R. I.
See cut of Elevator Hoisting Machine in issue of July
18, 1878, page 40.

PATTERNS, MODELS

and Experimental Machinery of every descrip-tion, made by WM. BURROWS, 90 Fulton St., N. Y.

Scranton Brass Works. J. M. EVERHART



CHE Street, SCHANTON, PA.

Russell, Burdsall & Ward,

Carriage, Tire, Plow,

Carriage Bolts made from Best Square Iron a Specialty.

JOHN RUSSELL CUTLERY

Green River Works,

Table and Pocket Gutlery,

BUTCHERS', HUNTERS', PAINTERS', DRUGGISTS' & HOUSEHOLD KNIVES IN ALL STYLES AND VARIETIES.

FIRST HOME MANUFACTURERS.

New York Office.

90 Chambers Street.



Factories,

Turners Falls, Mass.

E. M. BOYNTON.

First-Class Saws, Saw Frames, Cross-Cut Handles, Tools, Files, &c. Also Sole Proprietor and Manufacturer of the Genuine Patent Lightning Saw. 80 BEEKMAN STREET, NEW YORK.

TRIAL OF THE IMPROVED LICHTNING SAW.

The Emperor Dom Pedro, accompanied by Director General Goshorn, Superintendent Albert, and others, visited Machinery Hall, at the Centennial on the evening of June 28th. Among other things inspected, at the invitation of E. M. BOYNTON, of New York, they witnessed a trial of the New Lightning Saw, patented March 26, 1876. Two men, with one of these saws, cut off a sound log of gum-wood, one foot extreme diameter, in seven seconds, or at the rate of a cord of wood in five minutes. Messrs. Corliss, Morell, Lynch, and other members of the commission, witnessed the triale and timed the cutting. The Emperor remarked, That was fast, very fast cutting. Last evening the Emperor made another examination of the saw.—Philadelphia Press, June 30.

"BOYNTON'S SAWS were effectually tested before the judges at the Philadelphia Fair, July 6th and 7th. An ash log, eleven inches in diameter, was sawed off, with a four-and-a-half-foot lightning cross-cut, by two men, in precisely six seconds as timed by the chairman of the Centennial Judges of Class Fifteen. The speed is unprecedented, and would cut a cord of wood in four minutes. The representatives of Russia, Austria, France, Italy, Spain, Belgium, Sweden, England, and several other countries, were present, and expressed their high appreciation."

pressed their high appreciation."

Received Medal and Highest Award of Centennial World's Fair, 1876.

\$1000 Challenge was prominently displayed for six months, and the numerous saw manufacturers of the world dared not accept it, or test in a competition so hopeless.

Screen Door Springs,









VERY LOW.

Entand med low show and Viei proof from tons whill

Van Wagoner & Williams,

MANUFACTURERS,

82 Beekman Street, New York.